

# The Chrysidid Wasps of the World

---

*LYNN S. KIMSEY  
AND RICHARD M. BOHART*



**OXFORD SCIENCE PUBLICATIONS**

---









# THE CHRYSIDID WASPS OF THE WORLD

JOHN A. KROMBEIN

Department of Entomology

University of California, Davis

and

ROBERT M. KROMBEIN

Department of Entomology

University of California, Davis

Edited with Yale University

OXFORD UNIVERSITY PRESS

1979





# The Chrysidid Wasps of the World

---

LYNN S. KIMSEY

*Associate Professor of Entomology  
University of California at Davis*

and

RICHARD M. BOHART

*Professor of Emeritus of Entomology  
University of California at Davis*

Oxford New York Toronto

OXFORD UNIVERSITY PRESS

1990

Oxford University Press, Walton Street, Oxford OX2 6DP

Oxford New York Toronto  
Delhi Bombay Calcutta Madras Karachi  
Petaling Jaya Singapore Hong Kong Tokyo  
Nairobi Dar es Salaam Cape Town  
Melbourne Auckland

and associated companies in  
Berlin Ibadan

Oxford is a trade mark of Oxford University Press

Published in the United States  
by Oxford University Press, New York

© Lynn S. Kimsey and Richard M. Bohart, 1990

*All rights reserved. No part of this publication may be reproduced,  
stored in a retrieval system, or transmitted, in any form or by any means,  
electronic, mechanical, photocopying, recording, or otherwise, without  
the prior permission of Oxford University Press*

British Library Cataloguing in Publication Data

Kimsey, L. S. (Lynn Siri) 1953—  
*The chrysidid wasps of the world.*  
1. Wasps

I. Title II. Bohart, R. M. (Richard Mitchell) 1913—  
595.79

ISBN 0-19-854010-8

Library of Congress Cataloging in Publication Data

Kimsey, Lynn Siri.

*The chrysidid wasps of the world*/Lynn S. Kimsey and Richard M. Bohart.  
p. cm.

Includes bibliographical references and indexes.

1. Chrysididae. I. Bohart, R. M. (Richard Mitchell), 1913—  
II. Title.

QL568.C47K56 1990 595.79—dc20 90-40114

ISBN 0-19-854010-8

Typeset by Pure Tech Corporation, Pondicherry, India.

Printed in Great Britain by

Courier International Ltd

Tiptree, Essex



---

# ACKNOWLEDGEMENTS

---

It would have been impossible for us to have completed this study without the cooperation and assistance of dozens of individuals all over the world. The following is a list of institutions and collections which house chrysidid types. If we have borrowed types or studied types *in situ* at a particular institution the names of individuals who assisted us are given in parentheses. In a few instances an author gives a type repository that we have been unable to locate. In this case we only list the city or collection name given by the author. The city name given at the beginning of each entry corresponds with the repository given in the species lists.

ADELAIDE — Department of Entomology, South Australian Museum, Adelaide, Australia (E. G. Matthews).

ATHENS — Collection unknown.

BELEM — Museu Paraense Emilio Goeldi, Belém, Pará, Brazil (W. L. Overal).

BERLIN — Zoologisches Museum, Humboldt-Universität, Berlin, East Germany (F. Koch).

BRISBANE — Department of Entomology, University of Queensland, Brisbane, Australia (E. Exley).

BRUSSELS — Collections nationales belges d'insectes et d'arachnides, Institute Royal des Sciences Naturelles de Belgique, Brussels.

BUDAPEST — Zoological Department, Hungarian Natural History Museum, Budapest (L. Móczár, J. Papp, L. Zombori).

BUENOS AIRES — Division Entomologia, Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina (M. J. Viana).

CAIRO — Ministry of Agriculture, Cairo, Egypt.

CAMBRIDGE — Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA (J. M. Carpenter, M. Hathaway, S. Shaw).

CANBERRA — Division of Entomology, CSIRO, Canberra City, ACT, Australia (J. C. Cardale, I. D. Naumann).

CAPE TOWN — Department of Entomology, South African Museum, Cape Town (V. Whitehead).

CHUR — National Park Museum, Chur, Switzerland.

COPENHAGEN — Zoologisk Museum, Universitetsparken, Copenhagen, Denmark (O. Lomholdt).

CUZCO — Departamento de Zoología y Entomología, Universidad San Antonio Abad, Cuzco, Peru (A. F. Carrasco).

DAVIS — Bohart Museum of Entomology, University of California at Davis, USA (R.O. Schuster).

- DRESDEN — Staatliches Museum für Tierkunde, Dresden, E. Germany.
- DURBAN — Durban Museum, Durban, South Africa (C. D. Quickelberge).
- FRANKFURT — Forschungsinstitut Senckenberg, Frankfurt, W. Germany (J. P. Kopelke).
- FUKUOKA — Entomology Laboratory, Kyushu University, Fukuoka, Japan.
- GAINESVILLE-AEI — The American Entomological Institute, Gainesville, Florida, USA (H. and M. Townes).
- GAINESVILLE-FSCA — Florida State Collection of Arthropods, Gainesville, USA (L. A. Stange).
- GENEVA — Museum of Natural History, Geneva, Switzerland (C. Besuchet).
- GENOA — Museo Civico di Storia Naturale, Genoa, Italy (R. Poggi).
- GRAHAMSTOWN — Albany Museum, Grahamstown, South Africa (F. Gess).
- HALLE — Zoologisches Institut, Martin Luther Universität, Halle-Wittenberg, E. Germany (M. Dorn, J. O. Husing).
- HAMBURG — Zoologisches Institut und Zoologisches Museum, Hamburg, W. Germany.
- HELSINKI — Zoological Museum, Helsinki, Finland (O. Bistrom, A. Jansson).
- HOKKAIDO — Entomology Institute, Hokkaido University, Japan.
- HONOLULU — Department of Entomology, Bernice P. Bishop Museum, Honolulu, Hawaii, USA (G. M. Nishida).
- ITHACA — Department of Entomology, Cornell University, Ithaca, New York, USA (L. L. Pechuman).
- JAMMU — Department of Biosciences, University of Jammu, India (V. Sharma, type unavailable).
- KOBE — Kobe University, Japan.
- KRAKOW — Institute of Systematic Zoology, Polish Academy of Sciences, Krakow (M. Dylewska, J. Razowski).
- LA PLATA — Museo de la Plata, Universidad Nacional de la Plata, Argentina.
- LAUSANNE — Musée Zoologique, Lausanne, Switzerland (M. Goeldlin).
- LAWRENCE — Snow Museum of Entomology, University of Kansas, Lawrence, USA (R. W. Brooks, C. D. Michener).
- LEIDEN — Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands (C. van Achterberg).
- LENINGRAD — Zoological Institute, USSR Academy of Sciences, Leningrad (E. Budrys, V. Tobias, V. Trjapitsyn).
- LINZ — Oberösterreichisches Landesmuseum, Linz, Austria.
- LOGAN — Department of Entomology, Utah State University, Logan, USA (G. E. Bohart, T. Griswold, W. Hanson, F.D. Parker).
- LONDON — Department of Entomology, British Museum (Natural History) (M. C. Day, D. Morgan, C. Vardy).

- LOS ANGELES — Los Angeles County Museum, Los Angeles, California, USA (R. R. Snelling).
- LUND — Zoologiska Institutionen, Zoologiska Museet, Lund, Sweden (R. Danielsson).
- LUZERN — W. Linsenmaier, private collection, Ebikon, Luzern, Switzerland.
- MADRID — Museo Nacional de Ciencias Naturales, Madrid, Spain (E. Mingo-Pérez).
- MOSCOW — Zoological Museum, Moscow Lomonosov State University, USSR (A. V. Andropov).
- MUNICH — Zoologische Staatssammlung, Munich, W. Germany (E. Diller).
- NEW YORK — Department of Entomology, American Museum of Natural History, New York, New York, USA (M. Favreau, J. Rozen).
- OSAKA — Osaka Museum of Natural History, Osaka, Japan, (Y. Miyatake).
- OTTAWA — Hymenoptera Section, Biosystematics Institute, Agriculture Canada, Ottawa (L. Masner).
- OXFORD — Hope Entomological Collections, Oxford University Museum, England (M. C. Birch, C. O'Toole).
- PALERMO — Collection unknown.
- PARIS — Museum National d'Histoire Naturelle, Laboratoire d'Entomologie, Paris, France (S. Kelner-Pillault, J. C. Weulersse).
- PERTH — Department of Entomology, Western Australia Museum, Perth, Western Australia (T. Houston).
- PHILADELPHIA — Department of Entomology, Academy of Natural Sciences, Philadelphia, Pennsylvania, USA (D. Azuma, C. E. Dunn, D. Otte).
- PRAGUE — National Museum of Natural History, Department of Entomology, Prague, Czechoslovakia (J. Maček).
- PRETORIA-NIC — National Insect Collection, Plant Protection Institute, Pretoria, South Africa (C. D. Eardley).
- PRETORIA-TM — Department of General Entomology, Transvaal Museum, Pretoria, South Africa (M. Scoble, R. Toms).
- PULLMAN — Department of Entomology, Washington State University, Pullman, USA (R. S. Zack).
- QUEBEC — Laval University, Quebec City, Quebec, Canada.
- SALTA — M. Fritz, private collection, Salta, Argentina.
- SAN FRANCISCO — Department of Entomology, California Academy of Sciences, San Francisco, USA. (L. French, N. Penny, W. Pulawski).
- SÃO PAULO — Museo de Zoologia, Universidad de São Paulo, Brazil (C. R. F. Brandão).
- SAPPORO — Entomological Institute, Hokkaido University, Sapporo, Japan.
- SASAYAMA — Entomology Laboratory, Hyogo Agricultural University, Sasayama, Japan.



- SYDNEY-AM — Department of Entomology, Australian Museum, Sydney, New South Wales, Australia (C. N. Smithers).
- SYDNEY-MM — MacCleay Museum, University of Sydney, New South Wales, Australia (D. S. Horning).
- STOCKHOLM — Entomology Section, Naturhistoriska Riksmuseet, Stockholm, Sweden (S. Erlandsson).
- TAICHUNG — Entomology Collection, Taiwan Agricultural Research Institute, Taichung, Taiwan.
- TERVUREN — Entomology section, Musée Royal de l'Afrique Centrale, Tervuren, Belgium (E. De Coninck, J. E. Decelle).
- TSUKUBA — Insect Identification Laboratory, Ministry of Agriculture and Forestry Technical Services, Tsukuba, Chiba Pref., Japan.
- TUCUMAN — Instituto Miguel Lillo, Miguel Lillo, Tucumán, Argentina (A. Willink).
- TURIN — Museo ed Instituto de Zoologia Sistemática, Università di Torino, Turin, Italy (P. P. d'Entreves).
- VIENNA — Naturhistorische Museum, Vienna, Austria (M. Fischer).
- WASHINGTON — U.S. National Museum, Washington, D. C., USA (K. V. Krombein, A. S. Menke).

In addition to all of the material we have received from museums containing primary types (listed above) we have seen considerable material from other collections and individuals, all of which have contributed greatly to our study. This group includes:

Argaman, Q. (Tel Aviv University, Israel); Bechtel, R. (State Department of Agriculture, Reno, Nevada, USA); Brown, G. R. (Biological and Chemical Research Institute, Rydalmere, New South Wales, Australia); Burdick, D. (Fresno State University, California, USA); Campos, L. E. (Universidad del Chile, Santiago); Carrasco A., F. (Universidad San Antonio Abad, Cuzco, Peru); Cooper, K. (University of California, Riverside, USA); Cooper, M. (Herefordshire, England); Denning, D. G. (Berkeley, California, USA); Deyrup, M. A. (Archbold Biological Station, Lake Placid, Florida, USA); Evans, H. E. (Colorado State University, Fort Collins, USA); Forbes, G. S. (New Mexico State University, Las Cruces, USA); Friedburg, A. (Tel Aviv University, Israel); Gillaspay, J. E. (Texas A & I University, Kingsville, USA); Guichard, K. (London, England); Halstead, J. A. (Fresno State University, California, USA); Hamada, G. H. H. (Faculty of Agriculture, Moshtohor, Qalubia, Egypt); Hespenheide, H. (University of California, Los Angeles, USA); Kurzenko, N. V. (Institute of Biology and Pedology, Vladivostok, USSR); McGiffen, K. C. (Illinois Natural History Survey, Champaign, USA); O'Brien, M. (Museum of Zoology, University of Michigan, Ann Arbor, USA); Osten, T. (Staatliches Museum für Naturkunde, Stuttgart, W. Germany); Perez D'Angelo, V. (Museo Nacional de Historia Natural, Santiago, Chile); Quintero Arias, D. (Universidad de Panama, Panama City); Rust, R. W. (University of Nevada, Reno, USA); Schreiner, I. (University of Guam, Mangilao); Smith, N. J. (Agricultural Commissioner's Office, Fresno, California, USA); Starr, C. (De LaSalle University, Manila, Philippines); Velez-Angel, R. (Universidad Nacional de Colombia, Medellín); Wasbauer, M. S. (California Department of Food and Agriculture, Sacramento,

USA); Wharton, R. (Texas A & M University, College Station, Texas, USA).

The following individuals have made special collections of chrysidids during the course of our study, and have donated all or part of their material to the Bohart Museum, for which we are most grateful: Huber, J. T. (Palearctic specimens - National Insect Collection, Ottawa, Canada); Irwin, M. E. (South Africa, South America, SE Asia — Illinois Natural History Survey, Champaign, USA); Kimsey, R. (South Africa — University of California, Davis, USA); Sugden, E. A. (Dubai, Australia — University of California, Davis, USA); and Wasbauer, M. S. (Neotropical Region — California State Department of Food and Agriculture, Sacramento, USA).

Special acknowledgement must be given to those whose help was well beyond the ordinary. The following are also listed under the museum with which they are affiliated. The nature of their assistance is indicated below:

Andropov, A. V., furnished translations of Soviet localities; Brooks, R. W., made special efforts to collect chrysidids on Madagascar and checked nomenclature of non-megachilid host bees; Day, M. C., answered many questions concerning literature and consulted with us on phylogeny; Eardley, C. D., checked South African place names, gave us advice on publication matters, and arranged useful exchanges; French, L. D., examined types at Budapest and consulted on South American Elampini; Griswold, T., furnished corrections on nomenclature of megachilid hosts; Krombein, K. V., gave valuable information on Amiseginae; Lomholdt, O., provided special help on types of Fabricius and Dahlbom; Masner, L., provided a large valuable collection of Amiseginae acquired by unique collecting techniques; Menke, A. S., outstanding help in tracing old literature; Parker, F. D., contributed many new host-parasite records; Pesenko, Y. A., searched out types and gave advice on Russian literature; Pulawski, W., furnished sources for museum personnel and collectors, particularly in Europe; Schuster, R. O., made collections on California Channel Islands and handled all specimen shipments; Trjapitzin, V. A., interpreted details of the Semenov-Nikol'skaya collection and literature at Leningrad; and Whitehead, V., showed R. M. Bohart many collecting areas and helped with spelling of South African localities.

D. Carmean was of great assistance in locating difficult and obscure reference citations.

K. Gordenev was most helpful through her translation of Russian insect labels and critical Russian literature.

Most of the detailed, side-view drawings, identified by her initials, are the work of our illustrator, Karen English-Loeb.

Parts of the manuscript and particularly the final draft were painstakingly prepared by K. Bettencourt, K. Dooley, N. Dullum, and P. Kaplan.

Finally, we greatly appreciate the assistance of the National Science Foundation who supported this study through grants BSR 84-07392 and BSR 86-00341.





---

# CONTENTS

---

1	Introduction	1
2	Historical overview	3
3	Materials and methods	7
4	Biology	10
5	Biogeography	15
6	Morphology	21
7	General systematics	43
	Phylogeny	45
	Keys to subfamilies and tribes	50
8	Subfamily Cleptinae	52
	Key to genera of Cleptinae	53
9	Subfamily Amiseginae	71
	Key to genera of Amiseginae	78
10	Subfamily Loboscelidiinae	141
	Key to genera of Loboscelidiinae	143
11	Subfamily Chrysidinae	151
	Tribe Elampini	152
	Key to genera of Elampini	158
	Tribe Allocoeliini	272
	Tribe Chrysidini	276
	Key to genera of Chrysidini	281
	Tribe Parnopini	574
	Key to genera of Parnopini	576
	Bibliography	588
	Index of chrysidid names	615
	Index of chrysidid hosts	651



---

# 1 INTRODUCTION

---

Gold wasps or cuckoo wasps are common names often applied to the family Chrysididae. Their frequently metallic coloration justifies the former, and cleptoparasitic habits refer to the latter. This brilliant aspect is best observed on a sunny day as the female wasp is searching a nesting site of a favoured wasp host. The sunlight reflects from the parasite and seems to accentuate the metallic colours—blue, green, purple, red, copper, brass, and gold—in various combinations. Most chrysidids are small and, although not all are brilliant, the tiny ones often make up for in colour what they lack in size. The sight of a *Hedychridium* moving erratically over the sand like a drop of pure gold never fails to astonish the collector.

In the Western Hemisphere most chrysidids are metallic blue, green, and purple, in various combinations. In the old world, especially in the southern USSR and Africa, these wasps are often more colourful. A single specimen may be green, blue, purple, copper, gold, and red; all somewhat iridescent. These are interference colours. The true pigment shades of red, brown, and white are not so common. In addition to the often bright integument are the myriads of tiny impressions or punctures which are nearly always present. These modify and often enhance the coloration.

Some 3000 apparently valid species of Chrysididae have been named. These are now arranged in 84 genera and 4 subfamilies. In all probability a thousand or more species remain to be found.

Chrysidids are usually considered by collectors to be rarely encountered; yet they can be abundant. General net-sweeping of grass and low shrubs, or fields of flowers such as *Eriogonum* (wild buckwheat), will often yield dozens of specimens, mostly small ones. Trapping has been quite successful in recent years. Stick traps, such as those used by Krombein (1967) and Parker and Bohart (1966, 1968), have produced many chrysidids, as well as information on their hosts. Flight traps have been used successfully in the past few decades, and are particularly effective in catching males.

Chrysidids are distributed world-wide, but southern Asia, Africa, and the Middle East have not been fully explored. Only two world revisions have been attempted previously. The earlier authors were Dahlbom (1854) and Mocsáry (1889). In retrospect these valuable publications are seen to be quite incomplete. In particular, they suffer from the absence of a clear generic concept. A more recent work (Linsenmaier 1959<sup>a,b</sup>), treating the European fauna, was more positive in this respect but still quite conservative. None of these three workers treated the Amiseginae or Loboscelidiinae. Even now, these subfamilies of small, obscure wasps need much more work by systematists.

Despite the attractive nature of these wasps, there has been little major revisionary work. Most studies have concentrated on faunas of restricted geographic regions, rather



than revisions of specific taxa. As a result, many of the characteristics used to define genera, tribes, and subfamilies are only reliable at a regional level. There are also serious problems with homonymy and synonymy in this family, particularly for the Western Palearctic fauna. Furthermore, no previous study has ever been made of phylogenetic relationships within the Chrysididae.

We have attempted to reorganize the higher classification of the Chrysididae from the ground up, by studying all the generotype species and as many other species as we could locate. Generic groupings were evaluated and retained if we found them to be discrete, definable units. Unfortunately, several major groups, including the subfamily Cleptinae and the genus *Chrysis*, may be paraphyletic. We have found few derived characters that define these groups. However, little can be gained by merging them with other taxa; Cleptinae is clearly the sister-group of the rest of the Chrysididae, and *Chrysis* already accounts for half of the species in the family. Further intensive study of these groups may provide useful derived characteristics. Clearly, chrysidids have not always evolved in the neat, tidy units that taxonomists prefer to study.

Our re-evaluation of this family has led to an elimination of subgenera and considerable changes in the generic, tribal, and subfamilial classification. We have also attempted to provide as much information about these taxa as possible. Our goals are:

- (1) to provide a world-wide overview of the family, with a reclassification of the generic and higher taxa;
- (2) summarize previously published information;
- (3) indicate problem areas in need of further study; and
- (4) give a compilation of detailed synonymic species lists for each genus.

The family Chrysididae is considered to be part of the Aculeata, or stinging wasps and bees. However, chrysidids have a highly reduced sting and the terminal abdominal segments are invaginated. Thus, an external appearance of only 2 to 4, or 5, abdominal segments is created. This situation is unique in the Aculeata. The actual number of external segments is a characteristic of subfamilies and tribes within the Chrysididae.

Synonymic species lists are an important part of any generic revision. Without them the revision has limited value. We have spent much time and effort in making the lists as complete and accurate as possible. However, we are the first to admit that further study based on original types, which we have been unable to see, and on more material, to give a better idea of intraspecific variation, will refine and alter the lists. Our treatment of subspecies names may be controversial. Since most such names have been based on minor colour variations or inadequate study of geographical variation, we have elected not to rule on the validity of most of these names. Hence, they are simply listed under the recognized species.

We hope that this study will provide the groundwork and inspiration for more detailed revision. There is doubtless considerable undetected synonymy remaining in the Chrysididae, and many new species to be described.

---

## 2 HISTORICAL OVERVIEW

---

The history of chrysidid nomenclature parallels that of insects in general. The earliest work began with Linnaeus (1758). Most of the published studies of the following 100 years were purely descriptive, especially at the species level. Towards the end of the nineteenth century occasional efforts were made to bring information together in a revisional form. The quantity of taxonomic work was certainly influenced in a negative way by periods of national conflict. The Napoleonic Wars (1804–15) were one example. The effect of the First World War (1914–18) was drastic, and can be measured by the slim size of *Zoological Record* volumes during those years. The Second World War had a similar effect.

Some 140 workers have published about 4000 chrysidid names, and some have written catalogues, reviews, synopses, or monographs. The complete list of authors is given in the bibliography. Only the more significant of these are discussed below.

The earliest species and genus names were established by Linnaeus, DeGeer, Pallas, Scopoli, and J.R. Förster. Their chrysidid descriptions were usually part of ambitious encyclopaedic publications, and little attempt was made to define genera or higher categories. Count Maximillian Spinola (1805–41) published a series of papers, and Thomas Say (1824–36) provided some early descriptions of American chrysidids.

Andrea Dahlbom, in several papers, including early ones in 1829, 1831, and culminating in his monograph of 1854, was the first author to make a concerted attempt to pull together all information on chrysidids, and to make the group understandable with keys to genera and species. He contributed more than 150 specific names and his descriptions were models for the time. He also took varietal differences into account.

Some years after Dahlbom, but ranking with him in importance, was Alesandro (Sandor) Mocsáry (1878–1914). His *Monographie Chrysididarum* in 1889 was a landmark and brought together everything known at that time. Mocsáry himself confined his collecting activities to Hungary but a great deal of material came to him from other parts of the world. His descriptions and redescrptions of older species were detailed and useful. The only negative comments that can be made about this remarkable worker are that the generic concepts were somewhat weak, and the series of papers from 1890 to his death in 1914 were not quite as good as his earlier work. However, a majority of his 650, or more, new species names are still valid.

There were more than 50 other active chrysidid taxonomists who were, in a sense, competing with Mocsáry. Of these Robert du Buysson (1887–1913) was the dominant figure, describing nearly 250 species and subspecies. His collection at the Natural

History Museum in Paris is one of the five best in the world.

During this period Bischoff provided 92 new specific names, many subsequently synonymized by others, and created six new generic names, *Eurychrysis*, *Pseudogonochrysis*, *Pseudotetrachrysis*, *Pseudohexachrysis*, *Stilbichrysis*, and *Cephaloparnops*. Fortunately, his awkward 'pseudo' names are no longer in use. Bischoff followed the earlier work of J. Lichtenstein (1876) who all too simply arranged the generic names of the *Chrysis* group according to the number of teeth on T-III (tergum-III). These were *Olochrysis* (0), *Gonochrysis* (indistinct), *Monochrysis* (1), *Dichrysis* (2), *Trichrysis* (3), *Tetrachrysis* (4), *Pentachrysis* (5), and *Hexachrysis* (6). Of these only *Trichrysis* and *Pentachrysis* are still in use. It is interesting that Lichtenstein used *Tetrachrysis* in place of *Chrysis* Linnaeus (1758). He might be excused because the *International Rules of Nomenclature* of 1901 had not appeared. However, Bischoff and others who subsequently used *Tetrachrysis* had no such excuse.

Generál d'Artillerie O. Radozskowski (sometimes spelled Radozskowsky) (1866–91) was the first Russian to publish extensively on Chrysididae, providing about 104 specific names. He was the first to point out the taxonomic significance of male genitalia, an anatomical feature largely ignored by most later workers.

Andreas Semenov (1891–1912) continued the work on Central Asian chrysidids, and between 1891 and 1967 published about 350 specific names and 32 generic or subgeneric ones. Many of these appeared in manuscripts published after his death in 1942, as discussed later. The majority of his types are in the Zoological Institute, Leningrad.

Elzéar Abeille de Perrin (1877–79) studied in Paris under Perris. He is responsible for some 39 specific names, at least half of which are known to be synonyms. Buysson (1887*b*) published some of Abeille's manuscript names under authorship of 'Ab.' but the descriptions were clearly rewritten and must be attributed to Buysson.

Since the interchange of types was practically non-existent in Mocsáry's time, and with competition between more than 50 describers, much synonymy resulted. The contribution of Dalla Torre (1892) in presenting the chrysidid part of his *Catalogus Hymenopterorum* was a much needed forward step. Although he did not provide many new names he corrected misidentifications, placing them in the proper synonymy.

The period between the First and Second World Wars was not especially productive. Some 25 workers contributed new species. Bodenstein (1939*b*) advanced the study of genera with his *The genotypes of the Chrysididae*.

After the Second World War a number of large regional monographs were published. Balthasar (1943–53) wrote extensively on the fauna of south-eastern Europe, but created considerable synonymy. Linsenmaier (1951) produced an important, but preliminary, work on European chrysidids. Nikol'skaya (1950–54) published several of Semenov's manuscripts posthumously, with some of the new species attributed to both authors. Apparently, descriptions assigned solely to Semenov were dictated to Nikol'skaya after 1932.

Critiques of more recently active authors (1982–to present day) are not appropriate.



However, a special note should be made about the work of Walter Linsenmaier of Luzern (Ebikon), Switzerland. His 1959 revision of the European species was another landmark. Here, a species group concept was formalized for the first time, with descriptions and keys to various categories. Linsenmaier also created a number of generic and subgeneric names. Although we do not agree with the status of all of these, many are quite useful. Most of Linsenmaier's types are in his private collection and have been unavailable for study.

E. Berry Edney wrote an impressive series of papers on chrysidids of southern Africa, giving keys and illustrations. Since he restricted his field to South Africa and Zimbabwe, some synonymy resulted with wide-ranging species in the Afrotropical Region. Most of his types are at Cape Town, Pretoria (Transvaal Museum), or London.

Karl V. Krombein (1956–1990) of the Smithsonian Institute published a series of papers on Amiseginae, Elampinae, and Chrysidinae. He is especially noted for his detailed work on the Amiseginae, with many new genera and species. His types are nearly all at Washington, DC.

Lázló Móczár, former Curator at the Hungarian Museum, has been the outstanding recent authority on Cleptinae, initiating six new subgenera of *Cleptes* in 1962, and describing several new species.

Finally, some general comments can be made. The most prolific describers (50 or more species) have been Mocsáry, Semenov, Buysson, Linsenmaier, Radoszkowski, Edney, Krombein, Bohart, and Kimsey. Descriptions at the species level are basically important even though some synonymy may result. On the other hand, a different sort of credit should be given to those whose work was truly revisional: such early authors as Dahlbom, Mocsáry, Aaron, Semenov, and Bingham; and later workers such as Linsenmaier, Bohart, Zimmermann, Móczár, Edney, Campos (with Bohart), Krombein, Telford, Huber and Pengelly, Horning, Kimsey, and French.

A survey of newly proposed generic and subgeneric names reveals some interesting statistics. In the period between 1758 and 1784 only *Chrysis* Linnaeus (1761) appeared. From 1785 to 1804 three more generic names were presented: *Hedychrum* Latreille, *Omalus* Panzer, and *Parnopes* Latreille. In the early 1800s 18 more genera were named, and by 1914 57 new generic names were given, many of which have since been synonymized. After 1914 the total number of new generic and subgeneric names was 96, allotted to the various subfamilies as follows: Cleptinae (8), Amiseginae (25), Loboscelidiinae (1), Elampini (25), Chrysidini (37).

A chrysidid worker soon finds it necessary to visit or borrow material from important world collections. On the basis of both numbers of chrysidid types and overall size, the five most outstanding museums are at Budapest (Mocsáry collection), Leningrad (Semenov collection), Paris (Buysson collection), London (various contributors), and Luzern (Linsenmaier collection). Runners-up will be found in Pretoria, Philadelphia, Davis, Washington, Vienna, East Berlin, and Copenhagen. At one time or another we have been able to visit each of these museums.

A considerable number of chrysidid species remain to be described, based on our



examination of unidentified material from desert regions. At the same time it seems likely that nearly as many are still lurking in species lists, and only diligent study will help to place them as synonyms. It is to be hoped that in future work we will see; (1) a decrease in naming of subspecies and subgenera; and (2) naming of new species only in connection with generic revisions or large geographical studies.

---

## 3 MATERIALS AND METHODS

---

We have attempted to provide as much information on the Chrysididae as possible in this study. Due to space limitations we have used a variety of notations and abbreviations which require explanation. In addition, we feel that it is important to describe as fully as possible our approach to this study, as well as the facts which have led us to certain decisions. This will enable others to evaluate our conclusions for themselves.

For each major taxonomic group we give a variety of information. Discussions for each tribe and subfamily include ancestral characteristics, phylogenetically important characters and a corresponding cladogram, keys to genera, and relationships among taxa. Generic discussions include generic synonymy and diagnostic features, relationships to other genera, and detailed species lists.

### *Species lists*

A generic study, such as this one, would only be half complete without synonymic species lists. It has taken us thousands of hours to collect the relevant information, and for various reasons it is still not complete. We have examined some 2000 type specimens through borrowing and visits to the major museum depositories. Since nineteenth-century authors, before the establishment of the International Rules of Nomenclature, described many species from a series of syntypes, in many instances it has been necessary to designate lectotypes, both for valid species and for synonyms. On the whole, curators have been most co-operative in lending types and other specimens, and our appreciation has been expressed in the Acknowledgements. Some of the older types are no longer in existence and we have indicated this by 'lost?' or 'destroyed.'

In order to be helpful to future workers, we have furnished as much detail as possible in the checklists. A typical, but fictitious, listing might be: *Chrysis nonedita* (Smith) 1873:26 (*Tetrachrysis*). Lectotype male (desig. Bohart herein); Spain: Madrid (VIENNA). (*ignita* group).<sup>\*</sup> In explanation, this theoretical species of *Chrysis* was published by Smith in 1873 on page 26 (reference in the Bibliography). It was originally placed in the wrong genus (*Tetrachrysis*), so Smith is placed in parentheses. He described it from several specimens (syntypes), so Bohart here designates a single one of them as a lectotype. The original locality for the lectotype was Madrid, Spain. The type is now in the Vienna Natural History Museum (All museums containing type specimens are denoted by the city name in the lists. The full museum name is given in the Acknowledgements under the relevant city.). The species belongs in the *Chrysis ignita* group. When the repository is supposed to be a certain museum, but this has not been

verified, we have followed the name of the museum with a question mark. Also if we have seen the primary type we give an asterisk (\*) or if only secondary types then (\*\*) at the end of the species entry.

Some authors have used the designations f. (form) and ab. (aberration) for observed variations, along with new Latin names. These are invalid according to the *International Rules of Nomenclature*. However, they could possibly be elevated to the subspecies or species rank, and this has occurred several times. Consequently, we have listed these names in synonymy. When an elevation in rank has taken place, we have attributed the name to the reviser, with their publication date.

We have not indicated new combinations in these lists because this would be cumbersome. In some genera, for example *Brugmoia*, nearly every species would be a new combination. In others, like *Allochrysis*, the specific and generic names are new combinations but the generic name was previously treated as a subgenus.

Each entry in the list gives the valid species name and author, and distributional information. In the species distributions we first give the overall zoogeographic region (see Fig.1), followed by progressively more precise locations. For example: Afrotropical: South Africa (Cape Prov.). In addition, the symbols: n – northern, s – southern, w – western etc., are used. They do not refer to specific place names but to general directional areas within distributions. We have used the zoological regions because most distributions are within a single zoogeographic region.

A final word about the checklists. We are only too aware that errors may have gone unnoticed in spite of our precautions. A simple calculation of some 4000 entries, and perhaps 10 bits of information each, gives 40 000 possibilities for error. We hope that users of the lists will be charitable!

### *Missing types*

For perhaps five per cent of the listed names, the type specimens have been lost or their present location is unknown to us. Some of these pertain to older authors, particularly those who published before 1800, such as Rossi, Scopoli, Pallas, and Förster. After 1800 some types have simply disappeared, sometimes through neglect and insect or mould damage, such as those of Say, Harris, and Shuckard. In more modern species we have been unable to account for those types of Buysson (in Andre) (1891–1901), and many of the Radoszkowski types presumably deposited in Krakow, Poland. A small number of types were lost during the Second World War at Hamburg and Dresden through bombing and subsequent fire.

### *Subgenera and subspecies*

Our treatment of subgenera and subspecies must be considered quite conservative. With respect to subgenera, our opinion is that species groups are more flexible and nomenclature is not cluttered by them. Therefore we have avoided the formal subgeneric names. In the case of subspecies, many authors have proposed them quite freely

in the past. For instance, *Chrysis ignita* embraces 34 infraspecific names. Some of these are simple synonyms; some are local colour varieties; a few may represent clinal variation in colour, size, or punctation; some may be bona fide geographical races; and a few may be valid species which have not yet been recognized as such. On this last point, Linsenmaier (1959a) recognized as species the following, which were originally named by various authors as subspecies or varieties of *ignita*: *rutiliventris*, *japanensis*, *sinensis*, *sculpturata*, *valida*, *chinensis*, *pseudobrevitarsis*, *sparsepunctata*, *solida*, *longula*, and *obtusidens*. Other species in the *ignita* group are nearly as complicated and many other chrysidids are in a similar situation.

Taking *ignita* and its species group as an example, the present confused state can be solved only by study of long series from many localities, abundant rearing records, and detailed examination of male genitalia. In the absence of such information, we have simply listed all infraspecific names under the particular species without ruling on their validity. The whole subject of synonymy will be a challenge to future workers.



---

## 4 BIOLOGY

---

The biology of only a small percentage of chrysidid species has been investigated, and even these cases deal mostly with the identity of the host. All known chrysidids are parasites and their presence nearly always results in the death of the host. Therefore they fall into the categories of parasitoids or cleptoparasites. The latter name is appropriate when provisions by the adult host for its larva are 'stolen' and consumed.

Bethylids, the sister-group of the chrysidids, are parasitic on moth and beetle larvae. Chrysidids may feed on both of these, but only in a secondary way. The primary host list is much broader: walking stick insects (eggs), sawflies, silk moths, eumenids, bees, sphecids, and masarids. If provisions are included, we can add spiders, true bugs, aphids, thrips, and dead insects (*Microbembex* provisions). The nature of the primary food source is practically a subfamilial character in Chrysididae. Thus, Amiseginae and Loboscelidiinae attack walking stick eggs. Cleptinae parasitize sawfly prepupae, and Chrysidinae (except *Praestochrysis*, see below) use aculeate wasp and bee larvae. The secondary items of food (provisions) are much less significant.

As pointed out by Bohart and Kimsey (1982), there is a strong correlation between chrysidid morphology and the nature of the host. Those subfamilies which use harmless or helpless hosts, such as walking stick eggs or sawfly larvae, have four or five flexible, and often rather lightly sclerotized, abdominal segments. The Chrysidinae parasitize hosts which are able to defend their nests with sting and mandibles. In such cases the female chrysidid may have to protect herself while ovipositing in the host nest. These parasites have only three, four, or rarely two, relatively inflexible, and usually heavily sclerotized abdominal segments, and a flat or concave venter. This abdominal structure allows them to roll up into a relatively impervious ball when threatened.

There are two basic host stages attacked by chrysidids. Most species studied oviposit on, or adjacent to, the host prepupa. The egg hatches immediately and the resulting larva consumes the host and provisions, or the larva attaches to the host and only begins to feed when the host molts to the prepupal stage. The second method is apparently the more primitive of the two strategies used by chrysidids. The host has already eaten and physiologically processed the provisions. As a result, the chrysidid probably requires less digestive specialization than it would if it ate the host egg or larvae and provisions, which could be bugs, spiders, caterpillars, pollen balls, and so on.

Chrysidids exhibit a variety of parasitic behaviour, most of which involve oviposition, feeding habits of the larvae, and host selection. These are briefly summarized by subfamily in Table 1.

Table 1. Tabulation of the world genera of Chrysididae

Subfamily	Cleptinae	Amiseginae	Loboscelidiinae	Chrysidinae			
				Elampini	Allocoeliini	Chrysidini	Parnopini
Genera	Cleptes	Adelphe	Loboscelidia	Adelopyga	Allocoelia	Allochrysis	Cephaloparnops
	Cleptidea	Afrosega	Rhadinoscelidia	Diplorrhinos		Argochrysis	Isadelphina
		Alieniscus		Elampus		Brugmoia	Parnops
		Amisega		Exallopysga		Caenochrysis	
		Anachrysis		Haba		Ceratochrysis	
		Anadelphe		Hedychreides		Chrysis	
		Atoposega		Hedychridium		Chrysura	
		Baeosega		Hedychtum		Chrysurrissa	
		Bupon		Holophris		Exochrysis	
		Cladobethylus		Holopyga		Gaullea	
		Colocar		Microchridium		Ipsiura	
		Duckeia		Minymischa		Neochrysis	
		Exopapua		Muesebeckidium		Odonochrydium	
		Exova		Omalus		Pentachrysis	
		Imasega		Parachrum		Pleurochrysis	
		Indothrix		Prochridium		Praestochrysis	
		Isegama		Pseudolopyga		Primeuchroeus	
		Kryptosega		Pseudomalus		Pseudospinolia	
		Leptosega		Xerochrum		Spinolia	
		Magdaliun				Spintharina	
		Mahinda				Spintharosoma	
		Microsega				Stilbichrysis	
		Myrmecomimesis				Scilbum	
		Nesogyne				Trichrysis	
		Obenbergerella					
		Perissosega					
		Reidia					
		Rohweria					
		Saltasega					
		Serendibula					
Approx. no. of	84	108	27	674	9	1500	21
Species							
Host taxa	Diprionidae Tenthredinidae	Phasmatidae	Phasmatidae	Sphecidae Eumenidae (?)  Anthophoridae	Masaridae	Sphecidae Eumenidae  Megachilidae Masaridae Halictidae  Limacodidae	Sphecidae: Bembicini

Cleptinae are parasites of prepupal sawflies in the families Diprionidae and Tenthredinidae. Based on the few studies of their behaviour (Clausen 1940; Gauss 1964; Dahlsten 1961, 1967) certain generalizations can be made. *Cleptes* search for their host's cocoons in leaf litter or loose soil. Once a cocoon is located, the female chews a hole in it with her heavy mandibles. The long, robust ovipositor is inserted and the egg is placed on the host. When oviposition is complete, the hole in the cocoon wall is closed with mucilaginous material. The chrysidid larva spins a cocoon within the host cocoon.

Both Amiseginae and Loboscelidiinae are parasites of walking stick (Phasmatidae) eggs. Males are most commonly collected because they frequent low vegetation, often taking up exposed positions on leaves. Females are infrequently seen, probably because they are more likely to be found in leaf litter or in other sheltered areas searching for host eggs. What biological information we have has been clearly summarized by Krombein (1983a). Females nip a small hole in the host egg chorion with their slender mandibles and use the needle-like ovipositor to place an egg inside the host egg.

Major behavioural and structural changes have occurred in the Chrysidinae. These wasps, with one exception, (*Praestochrysis*) are nest parasites of wasps and bees. They actively enter nests, whether the host is present or not. The adult host is a capable fighter, equipped with powerful mandibles and sting. However, chrysidine morphology allows them to roll up into an impenetrable ball if they happen to be attacked by the host. The rigid cup-like abdomen effectively covers vulnerable intersegmental membranes and leg joints.

As discussed below, host nests can be above or below ground. Chrysidine females penetrate the host cell and either oviposit directly on the host or elsewhere within the cell. Some chrysidids, such as *Stilbum cyanurum*, *Chrysis angolensis*, and *C. lincea* appear to be nest-type specialists and parasitize a wide range of wasp taxa that all build similar mud nests in exposed areas. Others, such as *Chrysurissa* and *Pseudolopyga* are apparently host-taxon specific. In a further specialization, *Pseudolopyga* oviposits on the bugs provisioned by the host, rather than in the nest (as discussed below). Finally, the majority of *Praestochrysis* are direct parasites of prepupal moths, a secondary reversion to bethylid-like behaviour.

Some 'case histories' warrant further detail. These are given below.

A typical amisegine life history was given by D. J. Pirone (in Krombein 1960) who reared *Adelphe anisomorphae* from the ova of the walking stick insect, *Anisomorpha ferruginea* (Beauvois), in Georgia. An adult female oviposited in an egg of *Anisomorpha* after gnawing a hole in the chorion. The puncture was sealed by coagulation of the egg contents. The wasp embryo developed within the fluid of the egg, pupated, and finally emerged by popping off the operculum of the host egg. Oviposition by unmated chrysidid females resulted, as expected, in males only.

Carrillo and Caltagirone (1970) made detailed observations on host-parasite relationships between two species of sphecids, *Solierella peckhami* (Ashmead) and *S. plenoculoides* Fox, and a chrysidid, *Pseudolopyga carrilloi*. The studies were conducted at

several sites in central California, and then repeated under laboratory conditions. Results were quite surprising since it was found that the chrysidid oviposited on free-living nymphal bugs of the genus *Nysius* (Hemiptera Lygaeidae). Two *Nysius* species were involved, *N. raphanus* Howard and *N. tenellus* Barker. The *Solierella* were seen to construct nests in hollow twigs, holes in the ground, or in almond hulls, and provisioned each cell with 4–10 paralyzed *Nysius* nymphs. Only those nests with one or more bugs bearing *Pseudolopyga* eggs produced chrysidids. The parasite females searched for and oviposited in first – or second–instar nymphs of *Nysius*, attaching the egg to the hind gut of the bug. Apparently, the parasite developed beyond the first instar larva only in bugs paralyzed by *Solierella* and then used as prey. In nests of the wasp the first instar parasite molted to the second instar and emerged from the *Nysius*. It then sought out the *Solierella* egg or first instar larva, destroyed it, then fed on its host bug and others adjacent to it. Female *Pseudolopyga* examined *Nysius* nymphs before ovipositing. Those previously attacked were released, thus ensuring only a single parasite per bug. This is the only reported case of a chrysidid attacking a free-living host which is secondarily used as prey by a wasp.

An interesting source of competition for *Pseudolopyga* comes from the sympatric chrysidid, *Hedychridium solierellae*. This species, also studied by Carrillo and Caltagirone (1970), parasitizes the same species of *Solierella* as *Pseudolopyga*. However, it oviposits directly in the *Solierella* cells, and the parasite larva eats the host provisions and host, or perhaps the *Pseudolopyga* egg or larva.

Móczár (1961) reported observations in Hungary on oviposition by *Stilbum cyanurum* into the closed mud cell of *Sceliphron destillatorium* (Illiger). The female wasp was seen to moisten a spot on the dry mud with a droplet from its mouthparts, then probe the spot with its ovipositor. Repeated moistenings and probings finally penetrated the thick mud wall and an egg was deposited inside the *Sceliphron* cocoon. As the ovipositor was withdrawn, the softened mud closed over the hole, leaving only a wide hollow. The stout and multidentate *Stilbum* ovipositor has been assumed to be an efficient boring tool and this has not been entirely discredited. However, Móczár advanced the theory that the teeth were used primarily to give 'adequate support to the ovipositor sunk into the cell', rather than for boring *per se*. Berland and Berland (1938) listed hosts of *cyanurum* as *Sceliphron*, *Eumenes*, *Chalicodoma*, and *Megachile*, all making exterior nests of mud or plant products. The variety of hosts, from large to small, probably accounts for the great range in size of the parasite.

Piel (1933) studied the biology of *Praestochrysis shanghaiensis* in eastern Asia, where it is a direct parasite of the oriental moth, *Monema flavescens* Walker. The habits of this chrysidid appear to be typical for most, but not all, members of the genus. The wasp attacks the silken cocoon of the prepupal caterpillar when it has already become quite hard. A hole is made by biting out a small piece to allow penetration by the ovipositor. One or more eggs are laid loosely inside the cocoon. Then, the wasp scrapes material from the outside of the cocoon, moistens it with saliva, and plugs the hole. If for some reason the hole is not filled, mould may attack the contents of the cocoon with fatal



results. The wasp egg hatches in about two days and the first- stage larva begins to feed on the host caterpillar. In cases where several eggs hatch, battles ensue, and only one larva survives. The mature wasp larva forms its own cocoon inside that of its host, goes through a prepupal stage, and after 6–10 days enters the pupal stage, emerging as an adult several weeks later. Mating takes place soon after. Males live for only about two weeks but females may be active for a month or more.

Bordage (1913) reported on the habits of *Praestochrysis lusca* as a parasite of *Sceliphron*. The parasite egg is deposited in the nearly complete mud cell shortly after the *Sceliphron* egg. After the cell is closed, the first instar larvae of the two engage in combat, after which the survivor feeds on the provisioned spiders. However, if the *Sceliphron* egg fails to hatch, the *Praestochrysis* larva dies without touching the food supply!

An ongoing, detailed study of the habits of *Ammophila dysmica* Menke is being made by J. A. Rosenheim (1987) in the Sagehen Creek area of Nevada County, California. Mr Rosenheim has kindly given us permission to summarize some of his findings relating to *Argochrysis armilla*. The construction of many nests by the host wasp was observed. Frequent abandonment of nests occurred in the presence of *armilla*, especially when this cleptoparasite was active in the presence of the *Ammophila*. In a total of 275 nests examined, 71 (25.8 per cent) yielded *armilla*, with one to as many as six individuals per nest. In two cases both parasite and host fed on the provisioned caterpillars and developed successfully. When both the sarcophagid fly, *Hilarella hilarella*, and *armilla* attacked a nest, only the former finally emerged. Oviposition by *armilla* females took place when they followed the host into the nest during provisioning. These parasites were also commonly observed digging into nest closures, but only rarely did they reach the cell. Nesting *Ammophila* occasionally chased *armilla* females but the heavily punctate integument of the latter seemed impervious to attack, and the parasites resumed observation of nesting activities.

The host appeared to be aware of the presence of wasp and/or fly parasites, and undertook exceptional cleaning of the cell once oviposition on the caterpillar prey by *armilla*, or larviposition in the upper regions of the nest by *Hilarella*, had taken place. These cleaning efforts often resulted in ejection of the fly maggots, but were ineffectual in dislodging the *armilla* egg.

Two interesting points arising from this study contradict previous assumptions. First, when provisions are sufficient, both parasite and host may emerge successfully. Secondly, more than one chrysidid (up to six) may be produced from a single host cell.

---

## 5 BIOGEOGRAPHY

---

The fossil history of the Chrysididae is scant. The only specimens are from upper Cretaceous and lower Tertiary shale and amber, and belong to the Cleptinae, Amiseginae, and Chrysidinae (Elampini) (Table 2). The oldest of these are cleptines.

Despite the paucity of fossil information, the data we have supports observations on the biogeography of chrysidids based on extant forms (Table 3), and allows certain generalizations and speculations to be made.

**Table 2.** Fossil chrysidids described from amber and shale.

---

### Cleptinae

*Hypocleptes rasnitsyni* Evans 1973a:176. Holotype female; USSR: n Siberia, Taimyr (MOSCOW). (upper Cretaceous amber)

*Procleptes carpenteri* Evans 1969:259. Holotype Female; Canada: Manitoba, Cedar Lake (CAMBRIDGE). (upper Cretaceous amber)

### Amiseginae

*Protadelphbe aenea* Krombein 1986b:744. Holotype female; Russian SFSR: Sambian Peninsula (WARSAW). (upper Eocene amber)

*Protamesega khatanga* Evans 1973a:177. Holotype female; USSR: n Siberia, Taimyr (WARSAW). (upper Eocene amber)

### Chrysidinae: Elampini

*Palaeochrum diversum* Krombein 1986b:747. Holotype male; Russian SFSR: Sambian Peninsula (WARSAW). (upper Eocene)

*Palaeochrum primordialis* (Brues) 1933:154. (*Omalus*). Holotype female; Baltic amber (lost?). (upper Eocene)

*Chrysis miocenica* Rohwer 1909:534. Holotype female; USA: Colorado, Florissant (Univ. of Colorado). (Tertiary shale)

*Chrysis rohweri* Cockerell 1907:616. Holotype; USA: Colorado, Florissant (NEW YORK). (Tertiary shale)

---

Cleptines are the most primitive and probably the oldest group of chrysidids. They parasitize diprionid sawflies, herbivores on Pinaceae, and nematine tenthredinids, which feed on a wide range of north-temperate plant species. These chrysidids apparently evolved in the Holarctic or Laurasian Region. They managed to penetrate as far south as Argentina, probably in the Tertiary, but were later replaced in the Neotropical Region by *Cleptidea*. Only a single species of *Cleptes*, *fritzi*, remains in South America. For some reason this group never extended into the Afrotropical

Region or much of the Orient, presumably because of the absence of appropriate hosts in these areas.

**Table 3.** Tabulation of the number of chrysidid genera found in each Zoogeographic Region by subfamily or tribe. The number endemic to that region are given in parentheses.

Zoological Region						
Taxon	Palearctic	Afrotropical	Oriental	Australian	Nearctic	Neotropical
Cleptinae	1 (0)	0	1 (0)	0	1 (0)	1 (1)
Amiseginae	0	6 (6)	16 (16)	2 (2)	3 (1)	4 (2)
Loboscelidiinae	0	0	2 (1)	1 (0)	0	0
Chrysidinae						
Elampini	11 (3)	7 (1)	5 (0)	2 (0)	13 (5)	8 (1)
Allocoeliini	0	1 (1)	0	0	0	0
Chrysidini	13	12 (3)	7 (0)	3 (0)	9 (3)	8 (3)
Parnopini	3 (2)	1 (0)	0	0	1 (0)	0

The Amiseginae also originated in the Holarctic Region. They are egg parasites of walking sticks, which must have been widespread in this region during the Cretaceous and early Tertiary. By the Quaternary amisegines were probably well established in the Oriental and Neotropical Regions. Presumably, major changes in climate and repeated glaciation towards the end of the Tertiary and during the Quaternary caused the complete extinction of amisegines in the Palearctic Region and in western North America.

One of the two most primitive extant genera, *Adelphe*, occurs in the Americas. However, this scenario does not explain why the other primitive genus, *Anachrysis*, and the most specialized ones, *Afrosega* and *Leptosega*, occur in southern Africa. We have no records of Amiseginae in any other part of Africa, including Madagascar. The presence in Africa of one of the most primitive and several of the most specialized genera, and nothing in between, is an enigma that we are unable to explain. Much of the difficulty with this subfamily is caused by the paucity of available information. This group is probably far commoner than indicated by collections. Unfortunately, relatively specialized collecting techniques are required to obtain specimens; 'pitfall' and certain types of malaise traps are particularly effective. As a result, general collectors rarely see these wasps.

The Chrysidinae apparently evolved in the early Tertiary. Chrysidines also appear to have had their origins in the Holarctic Region, with the majority of genera still dominant there. Many of the larger genera, such as *Chrysis*, *Chrysura*, and *Hedychridium* have species groups common to both the Palearctic and Nearctic Regions. In the Western Hemisphere *Chrysis* is found throughout the Neotropical Region, but in

considerably smaller numbers than in the Nearctic. It has been largely replaced by *Neochrysis*, *Ipsiura*, *Exochrysis*, and *Pleurochrysis* in tropical America. The Afrotropical and Australasian chrysidines appear to have been derived from this Holarctic fauna, with a few notable exceptions which are discussed below.

Madagascan chrysidids are all closely related to those in south-eastern Africa. For example, *Stilbum viride* is closest to *S. cyanurum*, *Parnopes madecassus* to *P. fisheri*, and *Chrysis gheudi* to *C. lincea*. This, combined with an apparent lack of endemic genera, suggests that the chrysidid fauna of Madagascar is recently derived. One genus, *Chrysidea*, is found throughout the Afrotropical, southern Palearctic, and Oriental Regions. However, the great majority of species occur in Madagascar, where the genus has undergone considerable radiation.

Australia has a remarkably depauperate chrysidid fauna, and the smallest number of taxa of any of the continents. Although the amisegine genera, *Myrmecomimesis* and *Exova*, are endemic in northern Australia, they are clearly related most closely to Oriental groups. The same is true of the other Australian genera, although none are endemic. As with Madagascar, there is one genus, *Primeuchroeus*, that has undergone tremendous speciation in Australia. *Primeuchroeus* occurs in the Afrotropical and Oriental Regions, but the majority of species, as well as the least specialized ones, occur in Australia. This genus may very well have evolved in Australia and then radiated north and west. It parasitizes sphecoid wasps in the genus *Pison*. *Pison* is parasitized by a wide variety of chrysidids, particularly *Chrysis* in the rest of the world, but apparently only by *Primeuchroeus* in Australia, where *Pison* is quite diverse.

There is considerable evidence that the Chrysididae evolved, or at least diversified, after the breakup of Gondwanaland. Much of this can be gleaned from the above discussion. There are no close relationships between the Chilean, Argentinean, and Australian chrysidids. Although *Chrysis* occurs in both places, the Australian species are clearly more closely related to oriental ones than to any others. The American genera, *Pleurochrysis*, *Exochrysis*, *Caenochrysis*, *Ipsiura*, and *Neochrysis*, are endemic in the New World, occurring also in Argentina and Chile. Australia has *Stilbum*, *Praestochrysis*, and *Primeuchroeus*; all Old World genera. No amisegines occur in Chile, or in all but the northernmost part of Argentina. The Australian amisegines are most closely related to other oriental genera. In addition, there are no relationships between species in southern Africa and those of Australia or South America, except the enigmatic African *Anachrysis*, which is closer to *Adelphe* in the Americas than to any other extant genera.

As discussed above, chrysidids occur in all zoogeographic regions except Antarctica. We give specific details about distribution under each genus, particularly in the species lists. However, there are certain patterns that warrant further discussion.

Most species and/or genera occur within specific zoogeographic regions (Fig. 1). These regions are gross generalizations but they are useful to show global distributions. However, the regional limits that we are using are slightly different from the classical ones of Wallace (1876). These differences more closely reflect the distributions of chrysidid species, and are as follows.





Fig. 1. Zoogeographic regions.

Cuba shows more affinities with North America than with Middle or South America, so we are treating it as part of the Nearctic Region. We use the term Afrotropical for the Ethiopian Region as it more clearly describes this area. In addition, the chrysidid faunas of Ethiopia and most of Somalia show the closest affinities to the Palearctic, even though chrysidids in the area known as Eritrea, along the coast of Ethiopia, show a relationship with other Afrotropical species. The Middle East, including all of Saudi Arabia, both Yemens, and Oman, is clearly Palearctic and not Afrotropical in affinity. Other major differences are in the extent of the Oriental Region. For chrysidids the western part of the Oriental Region is bounded by the Great Indian Desert and the southern slope of the Himalayas. The boundary between the Oriental and Australian Regions extends between Celebes and New Guinea and Australia and Timor.

There are five basic types of distribution in this family.

- (1) small, locally endemic genera;
- (2) widespread, 'weedy' species, doubtless transported by human activities;
- (3) relatively large genera restricted to one, or perhaps two, faunal regions;
- (4) endemic island faunas; and
- (5) odd and highly disjunct distributions.

The Chrysididae includes quite a number of small, endemic genera. Most of those that attack aculeate Hymenoptera occur in temperate desert regions, undoubtedly



reflecting the greater abundance of Apoidea, Sphecidae, and Eumenidae in these areas. Unfortunately, we lack information about the hosts of most of these, but they are probably endemic as well. chrysidid genera found only in the south-western USA and north-western Mexico are *Minymischa*, *Hedychreides*, *Microchridium*, *Argochrysis*, *Chrysaurissa*, and *Xerochrum*. *Spintharosoma*, *Parachrum*, and *Odontochrydium* occur only in southern Africa. Four genera are restricted to the area extending from North Africa and the Middle East to southern USSR, including *Haba*, *Prochridium*, *Allochrysis*, and *Adelopyga*. There is only one endemic genus, *Gaullea*, in South America, and it occurs in the arid thorn scrub of Argentina.

The Amiseginae includes many small and seemingly endemic genera. Much of this apparent endemism may be due to limited and incomplete collecting, rather than restricted host distribution.

Human activities are clearly responsible for the distribution of a number of 'weedy' species. The majority of these are parasites of sphecids and eumenid wasps, particularly *Sceliphron* and *Eumenes*, that build mud nests above ground. Nests are commonly built on equipment, ships rigging, and other such structures, and are just as often parasitized. Since many of the host genera are virtually cosmopolitan, and the chrysidids are nest-type specialists rather than host-taxon specialists, some chrysidids have been transported and established widely. Two of the best examples of this are *Chrysis angolensis* and *Stilbum cyanurum*. *Chrysis angolensis* is practically cosmopolitan and *S. cyanurum* occurs throughout the warmer parts of the Eastern Hemisphere. In both cases this has resulted in a multiplicity of synonyms.

A few species in other genera have been introduced into other regions in a different fashion. *Omalus aeneus* and *Pseudomalus auratus* parasitize twig-nesting pemphredonine sphecids, which commonly nest in rose and berry canes. These chrysidids have been introduced to North America in plant material, and have managed to become established as parasites of local or introduced pemphredonine species. A similar situation has occurred with *Cleptes semiauratus*, which parasitizes the prepupae of several Holarctic genera of sawflies. Cocoons containing prepupae are usually located in litter and debris below the host plant and may be transported with horticultural material.

Although most chrysidids are fully winged and are relatively strong fliers, amisegines and loboscelidiines are not. This has resulted in a large number of island endemics, particularly in the Caribbean area and the Oriental Region. Nearly every island that has been well sampled has its own endemic species and sometimes even endemic genera. For example, in the Caribbean every island appears to have one or maybe two unique species of *Adelphe*. In the Oriental Region many species have flightless females with cryptic habits, which further restricts their dispersal. In addition, their phasmatid hosts may feed on plants with restricted distributions.

For some reason the Philippines have several peculiarly coloured endemic species, which are more closely related to other widespread species than to each other. These are *Stilbum chrysocephalum*, *Chrysis diademata*, *C. laevicollis*, *C. igniceps*, and *Praestochrysis luzonensis*. All have a strikingly red head and dark purplish or blue body. We have been

unable to find any reasonable explanation for the repetition of this unique colour pattern.

Finally, there are a small number of genera with odd, disjunct distributions. One of these, *Cleptes*, has been discussed above. *Pseudospinolia* occurs in the Palaearctic, with one species extending into the northern Nearctic, and one in Chile. These wasps are parasites of the eumenids, *Odynerus* and *Paravespa*. The Chilean species, *P. tertrini*, is probably a relict left from the time when *Odynerus* and *Pseudospinolia* were more widely distributed in the Americas. Although *Odynerus* is not now found in South America, the related genus *Hypodynerus* is endemic in southern South America, and abundant in Chile. It may be the host of *P. tertrini*. *Pseudolopyga* has three species in western North America and one in Chile. As in the case of *Pseudospinolia*, the Chilean species may be a relict.

---

## 6 MORPHOLOGY

---

To prevent confusion and duplicative terminology we have tried to determine structural homologies among chrysidids and other aculeates and to apply the most appropriate names to these structures. In a few instances the modifications found in the Chrysididae appear to be unique in this family, at least to the extent that they have not been named by anyone previously. We have relied almost exclusively on Bohart and Menke (1976) for the terminology of sculptural features of the mesopleuron, many of which appear to be homologous with those found in Sphecidae. In addition, we have referred to the following studies to develop a morphological nomenclature for the Chrysididae: Snodgrass (1910) and Richards (1956).

The chrysidid abdomen presents a variety of nomenclatural difficulties. First, although the propodeum is actually the first abdominal segment, we refer to the first gastral segment as the beginning of the functional abdomen. Therefore our thorax equals thorax + propodeum, or mesosoma, of Michener (1944) and abdomen (actual segment II onwards) equals the metasoma of Michener. Secondly, the chrysidid abdomen consists of two functional parts: the external, apparent abdomen comprising segments I, II, III, IV, or V depending on the subfamily and sex, and the invaginated segments, which form a telescoping genital (males) or ovipositor (females) tube. The external segments are often referred to as 'the abdomen', although all abdominal segments (I–IX) are well developed in this family.

### *Head*

The basic structure of the chrysidid head differs little from other members of the Chrysidoidea; although even the most primitive chrysidids such as *Cleptes* tend to have large, bulging, well-developed eyes.

In most chrysidids, the back of the head tends to be relatively flat or shallowly convex, without distinct carinae or sulci. However, Chrysidini and some Parnopini have a broad indentation across the back of the head above the occipital foramen, adjacent to a more dorsal, transverse swelling. A diagnostic feature of Chrysidini is the formation of this indentation into a transverse carina or welt, similar to that seen in some *Ceramius* (Masaridae), except that in chrysidines it terminates laterally in a tooth-like projection or hook (Fig. 2a). This sulcus is called the *preoccipital carina* and the lateral projection the *preoccipital hook*. In *Chrysis ehrenbergi* and in *Brugmoia* this hook is represented only by the sharply curved apex of the carina. In all chrysidids the *occipital suture* is reduced, extending only from the *midventral line* to the *posterior tentorial pits*. The *post-occiput* is projecting and collar-like. The hypostoma is, at most, indicated

by a crease or an elevated region adjacent to the *oral fossa*. The occipital region in *Loboscelidia* projects strongly posteriorly, the cervical projection (Fig. 2c), with an odd lateral lamella.

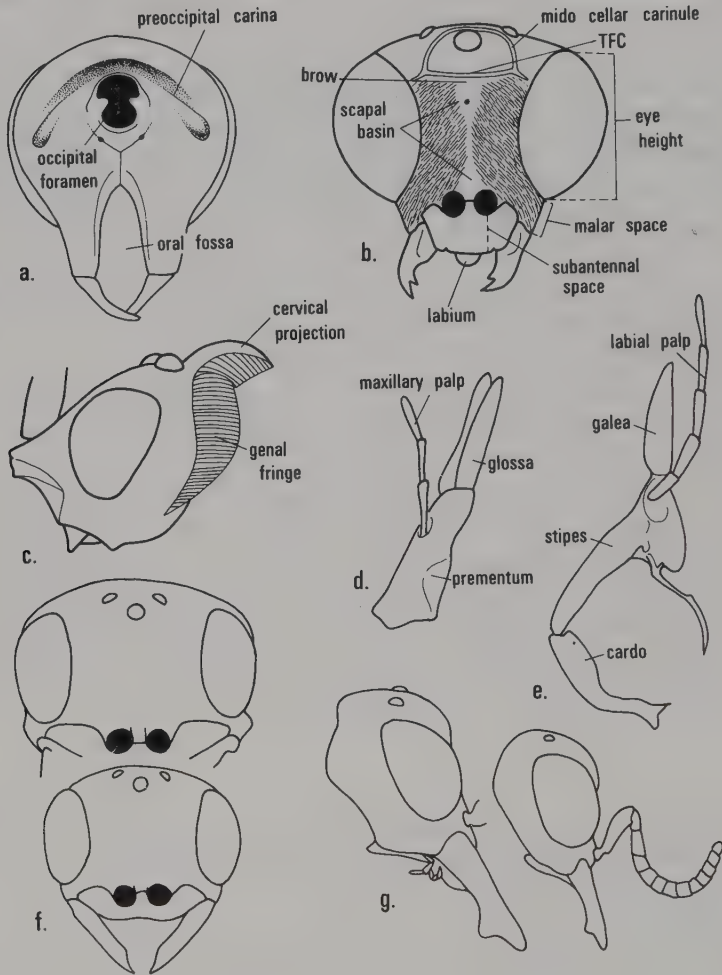


Fig. 2. Details of the male chrysidid head. (a) head, posterior; (b) face; (c) head, lateral; (d) maxilla; (e) labium; and (f)–(g) allometric variation in female head, face (f), lateral (g). (a) *Stilbum cyanurum*; (b) *Brugmoia pellucida*; (c) *Loboscelidia philippinensis*; (d) (e) *Pseudospinolia neglecta*; and (f), (g) *Chrysis ebrenbergi*.

Laterally, the chrysidid head consists primarily of the compound eye. The length of the *malar space*, the area between the ventral eye margin and the mandibular insertion, is of taxonomic importance at the species, species group, and generic levels. Many



amisegine genera are distinguished by the presence of a *malar sulcus* traversing the malar space from eye to mandible. The sculpture of the gena is also taxonomically important. A characteristic uniting the Chrysidini, Allocoeliini, and Parnopini is the presence of a carina extending through the gena from the mandible along the posterior eye margin (Fig. 2*b*). *Exochrysis* and some other genera have a large subgenal area enclosed by a ventral carina below the genal carina (see Fig. 66*b*).

## Face

The front of the head, or the face, is distinctive in chrysidids. The antennae insert low on the face on the dorsal margin of the clypeus, except in Loboscelidiinae. The clypeus is usually short and broad, with an apical truncation and the dorsal margin tends to extend around, and partly enclose, the antennal sockets (Fig. 2*b*). In Cleptinae the clypeus almost appears to be divided into three parts by the antennal sockets (see Fig. 12*e*). However, in some genera, such as *Stilbum*, the clypeus may be longer than it is broad. The labrum is a small rounded lobe often hidden by the mandibles and clypeus. In all subfamilies except the Cleptinae and Loboscelidiinae, the face has two discrete regions: the *upper frons* or *brow*, and the *scapal basin* (Fig. 2*b*). The frons has a transverse carina, or TFC, in most Chrysidini, two amisegine genera, and a few species of *Hedychridium*. This transverse carina may also have branches extending towards, and sometimes encircling, the mid ocellus (Fig. 2*b*), as in *Stilbum*. In most species the scapal basin has punctation different from that of the frons and may also have a zone of fine medial cross-ridging and/or an impunctate and polished medial stripe. The principle exception to this is *Chrysura*, where the face is nearly flat and densely punctate granulose throughout (see Fig. 116*a*). A different situation occurs in loboscelidiinae where the antennae insert near the middle of the face on a shelf-like medial projection (Fig. 2*c*).

Chrysidid mandibles are usually simple, with one or two subapical teeth. Cleptine mandibles tend to be robust with two or three large subapical teeth. Some elampines, chrysidines, and male amisegines have simple edentate mandibles. Male *Adelphe* have very odd foliaceous mandibles (see Fig. 18*a, b*).

*Chrysis ehrenbergi* is unusual in another respect. Females exhibit a variety of allometric forms. Some females are very similar to males, others have a greatly enlarged head, with a number of features exaggerated including the swollen genal region and large, ventrally toothed mandibles (Fig. 2*f, g*).

## Antenna

All chrysidids, male or female, have a scape, pedicel, and 11 flagellomeres (Fig. 3). The flagellomeres are usually cylindrical in cross-section. In a variety of species, however, the male (or less commonly the female) flagellum may be broad and flattened. Sexual dimorphism in flagellar shape is relatively common in chrysidids. In amisegines the female flagellomeres are generally short and wide; in males they are greatly

elongate and setose. The basal male flagellomeres of one species, *Pleurochrysis bruchi*, are broad and flabellate (see Fig. 132b).

There is also considerable variation in the relative lengths of the first three flagellomeres. In *Holopyga* and *Ceratochrysis* the first flagellomere is usually three or more times as long as it is broad. The third flagellomere is usually shorter than the first, at least in females, but in *Chrysis stilboides*, and other species once placed in the genus *Pyria*, it is the longest flagellomere (with the first much reduced). Another modification of these flagellomeres occurs in the males of some species of *Chrysura*, where the segments are lobulate beneath.

## Mouthparts

The development of the mouthparts in Chrysididae varies from the most primitive form seen in *Cleptes* to the most specialized in some *Parnopes* (Fig. 2d, e; see Fig. 156c). The mouthparts of Cleptinae, Amiseginae, and Loboscelidiinae are similar to those in other chrysidoid families. In these groups the maxillae and labium lie flat in the oral fossa, with relatively long palpal segments. In all chrysidids, except some *Parnopes*, there are five maxillary and three labial palpal segments. The tongue in Elampini is not particularly modified, except that the cardines, stipes, and prementum are elongate and the tongue protrudes from the oral fossa. In *Allocoelia* the tongue length is sexually dimorphic with the male cardines, stipes, and prementum considerably longer than those of females. Both sexes of *Allocoelia* have an elongate glossa and galea, covered with microtrichia. Chrysidini all have a somewhat elongate tongue that protrudes from the oral fossa. As in the elampines the cardo, stipes, and prementum are considerably enlarged. The most unusual tongue modification can be seen in many Parnopini. In these species the glossa and galea are greatly elongate, forming a tubular proboscis (see Fig. 156c). The palpi are virtually absent in *Parnopes*. In *Cephaloparnops* the proboscis is elongate but the palpi are generally normal with five maxillary and three labial palpal articles (see Fig. 152c).

## Thorax

The simplest and least modified thoracic structure can be seen in the Cleptinae and winged Amiseginae. In this respect these subfamilies do not differ much from other winged chrysidoids, particularly Bethyridae. The more specialized chrysidids often have an elaborately modified thorax, with complex sculpturing and punctation.

## Pronotum

The pronotum is separate from, and hinged to, the propleura; except in *Loboscelidia* where they appear to be fused. It is relatively box-like with a lateral lobe which covers the spiracle (see Fig. 48). This lobe touches or nearly touches the tegula in Cleptinae, Amiseginae, and Loboscelidiinae. The two are widely separated in the Chrysidinae (see Fig. 3).

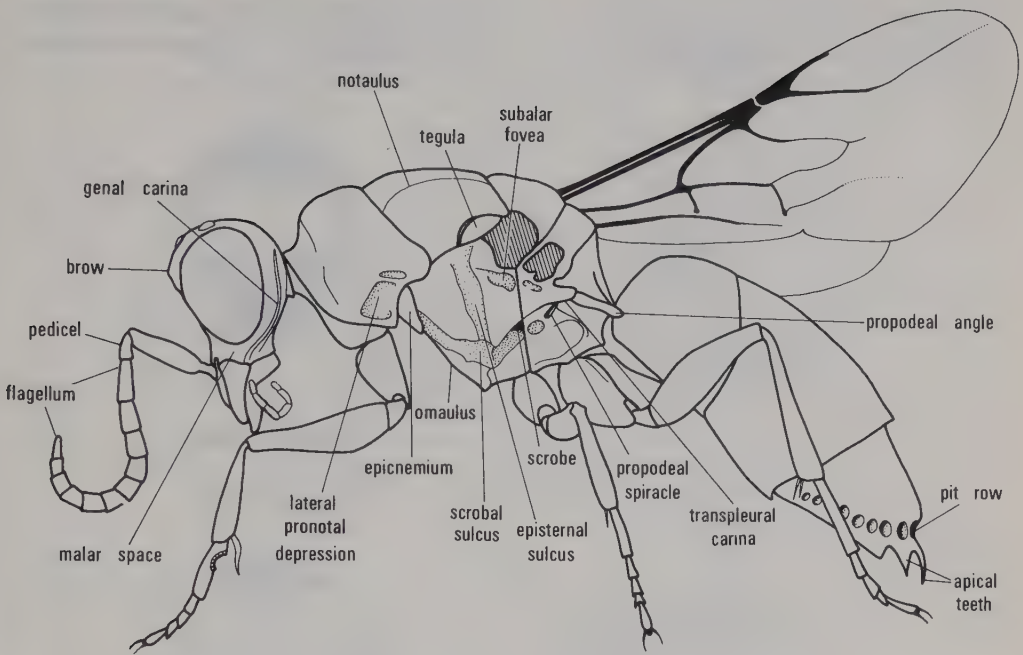


Fig. 3. Lateral view of *Chrysis inaequidens*.

In most chrysidids the pronotum has an anterior shelf, or collar, followed by a large, elevated quadrate region. These two regions may be separated by submedial carinae, as in *Parnopes*; a foveate groove, as in *Cleptidea*; or a vertical lateral carina, as in a variety of Chrysidini. Many chrysidines and elampines have 2–4 deep, submedial, or one medial, pit at the base of the pronotal shelf. These pits correspond with a short, broad internal apodeme. The pronotum may also have a lateral carina, particularly noticeable in *Ipsiura* and some *Praestochrysis*, or have a variety of sculpturing, such as the medial and transverse grooves, pits, and foveae, seen in the Cleptinae.

### Propleura and sterna

The propleura are usually relatively simple and unmodified. Some species of *Allocoelia* have a lateral propleural tooth. In the majority of chrysidids the propleural plates meet ventromedially for 50 per cent, or less, of the distance from the anterior margin to the posteromedial junction (Fig. 4 and 5). Where this is the case the prosternum is large, exposed, and somewhat diamond-shaped, and medially longer than the length of the juncture between the propleura. Amisegines and loboscelidiines, however, differ from this form. In these subfamilies the propleura meet for 60–80 per cent of the total

distance and the prosternum is narrow and largely obscured by the pleura (Fig. 4*b, c*). The exposed part of the prosternum is considerably shorter than the juncture between the propleura. This condition is much more typical of members of the other chrysidoid families, except *Scolecbythidae*. *Scolecbythids* also have a very large exposed prosternum.

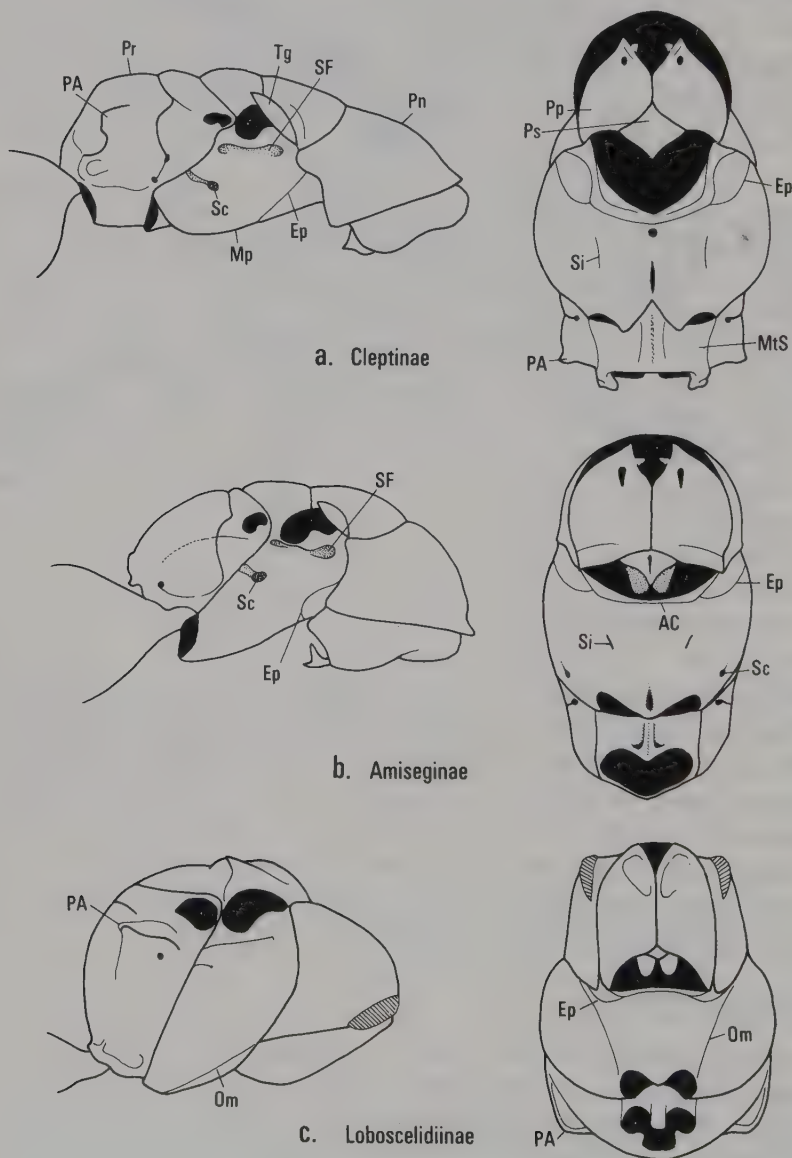


Fig. 4. Lateral (left) and ventral (right) views of chrysidid thorax. Ep – epicnemium; Mp – mesopleuron; MtS – metasternum; Pn – pronotum; Pp – propleuron; Pr – propodeum; Ps – prosternum; PA propodeal angle; S – scrobe; SF – subalar fossa; Si – signum; Tg – tegula.



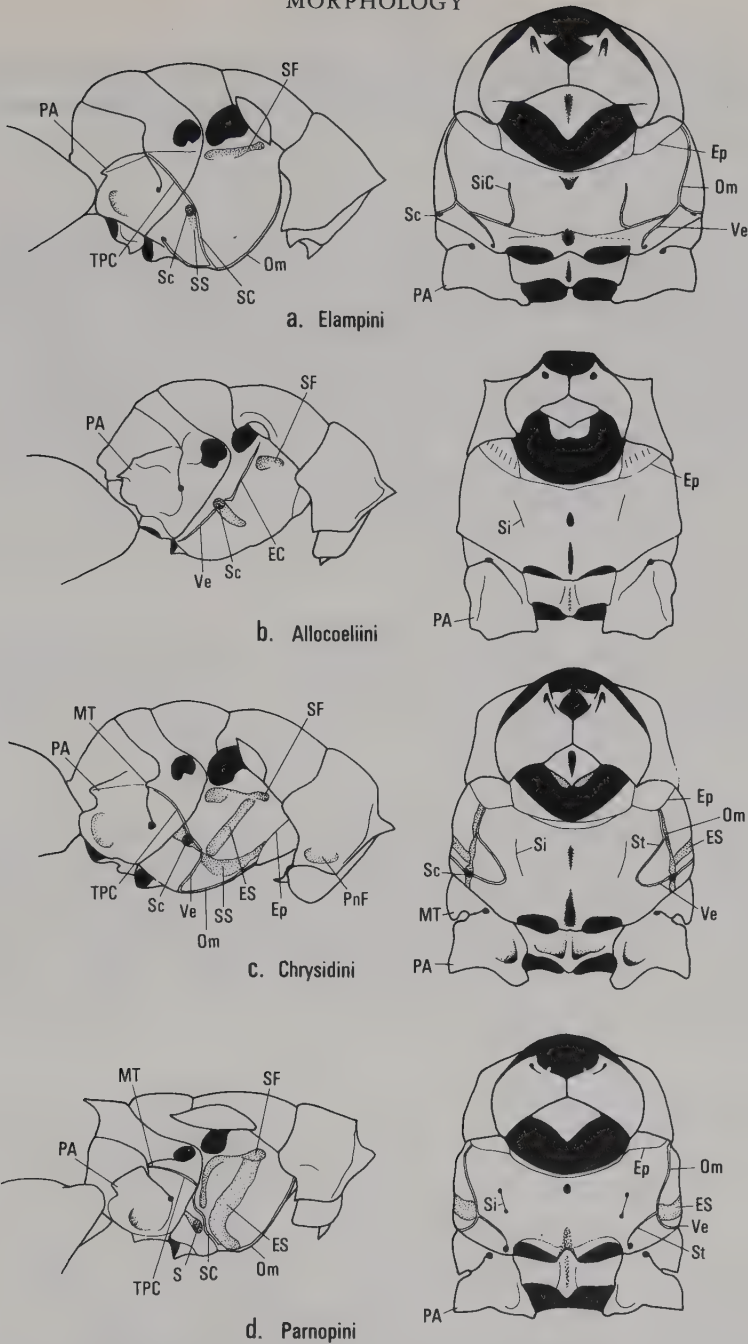


Fig. 5. Lateral (left) and ventral (right) views of Chrysidinae thorax. EC - episternal carina; Ep - epicnemium; ES - episternal sulcus; MT - metapleural tooth; Om - omaulus; PA - propodeal angle; PD - pronotal depression; Pn - pronotum; Pp - propleuron; Pr - propodeum; S - scrobe; SC - scrobal carina; SF - subalar fossa; Si - signum; SiF - signum carina; SS - scrobal sulcus; TPC - transpleural carina; Ve - verticulus.

The chrysidid prosternum is generally medially concave, with two large subapical lobes which extend into the body cavity. These lobes are not visible unless the coxae are removed.

### Scutum

The scutum is a broad, somewhat convex plate, divided into three subequal parts by the *notauli*. Laterally, between the notaulus and the tegula, is the *parapsidal line*, extending from the posterior scutal margin, anteriorly, about halfway across the scutum, parallel to the notauli. Originating at the anterior scutal margin are two short, submedial *admedian lines*. Notauli are usually present but their absence or incomplete nature can be a diagnostic feature, as for example in *Omalus glomeratus* or *Loboscelidia*. Most species have a rather coarsely and evenly punctate scutum. However, in *Omalus* and related genera they are either impunctate and very shiny or the punctures tend to be clumped along or between the notauli.

### Scutellum

Usually shorter than the scutum, the scutellum is generally unmodified in chrysidids. One exception to this occurs in *Muesebeckidium* where the scutellum is sharply declivitous anteriorly (Fig. 74d).

### Tegula

Tegular shape is an important characteristic at the species and subfamily levels. *Parnopes* and *Loboscelidia* have huge ovoid tegulae, which cover both wing bases. In a few species of *Parnopes* the tegulae are somewhat comma-shaped. *Loboscelidia* have an unusual arrangement, in which the outer edge of the tegula snaps into a groove on the mesopleuron, effectively enclosing and protecting the wing bases (see Fig. 48). *Allocoelia* have unusually small tegulae, which in the case of *capensis* are nearly hidden by the elevated and bulging scutum.

### Mesopleuron

One of the most complex parts of the thorax is the mesopleuron. The sculpturing of this part of the body is of particular importance at the species, species group, and generic level (see Figs 4 and 5). Some of the grooves and carinae found on the chrysidid mesopleuron appear to be homologous with those found in the Sphecidae and so we have adopted the nomenclature developed by Bohart and Menke (1976), where possible. This is the only complete terminology available since these structures have not been consistently named in studies of other chrysidoid families.

All chrysidids have a signum, scrobe, and subalar fossa (Figs 4 and 5). The *signum* is a short sublateral line located on the ventral surface of the mesopleuron. The *scrobe* is a deep pit located about halfway between the fore wing and mid coxa near the

meso-metapleural suture. Located just below the wing base is the *subalar fovea*, a deep, well-marked pit or groove; or in the case of *Loboscelidia* a ridge.

Anteriorly, the chrysidid mesopleuron has a small ovoid plate set off by a suture from the rest of the pleuron, called the *epicnemium*.

Most elampines (Fig. 5a) have a relatively simple mesopleuron. However, in several genera, including *Muesebeckidium* and some *Holopyga*, the dorsal half of the mesopleuron is greatly expanded both laterally and anteriorly (see Fig. 73). In these species the *scrobal sulcus* extends nearly vertically immediately below the scrobal carina. This carina originates at the meso-metapleural suture above the scrobe and ends at the omaulus. The *omaulus* originates on the epicnemium and extends ventrally. Just anterior to the mid coxae is the *precoxal carina*, which extends from the mid-line to the *sternaulus*. In *Omalus*, and related genera, a carina extends from the verticaulus along the signum to its apex.

Allocoeliines (Fig. 5b) are not particularly unusual except that they have a carina that runs from the fore wing base, alongside the scrobe, and ends just above the mid coxa. The dorsal part, above the scrobe, is the *episternal carina*, and the ventral half is the *verticaulus*.

Chrysidines (Fig. 5c) can have the most highly sculptured mesopleuron of any of the chrysidids. Many species have a large, well-developed scrobal sulcus, which divides the thorax in half horizontally, and the *episternal sulcus*, which divides it in half vertically. The verticaulus and omaulus form a ventral U or V-shaped loop. In *Brugmoia*, *Stilbum*, and a number of *Chrysis* these two carinae may be modified into one or more large teeth or knobs. Probably the most extreme modification of the mesopleuron occurs in *Stilbum*.

Parnopini (Fig. 5d) are somewhat intermediate between Elampini and Chrysidini in terms of their mesopleural sculpture; the subalar fovea is very long and extends posteriorly almost to the scrobe. In all *Parnopes*, however, the scrobal carina and omaulus form the edge of a broad, relatively flat *epimeral plate*.

## Mesosternum

The mesosternum in chrysidids is reduced and barely visible. It consists of a narrow, transverse sclerite forming a declivity between the posterior margin of the mesopleuron and the mid coxae.

## Metanotum

The metanotum can be the most highly modified of all the dorsal plates. The metanotum in *Elampus* and *Parnopes* has a large, dorsally flattened, blade-like medial projection (see Figs 53 and 156f, g). The whole metanotum may be conical, as in some *Philoctetes*. Numerous species, in a wide variety of genera, have a large or small medial tooth, or prong, on the metanotum. Conversely, a number of amisegine genera have a narrow and much reduced metanotum, or the metanotum may be indistinguishably fused to the propodeum. In addition, one of the diagnostic features of the Chrysidini

and Parnopini is the presence of a large, clearly defined lateral metanotal tooth, or angle, immediately adjacent to the propodeal tooth (Fig. 3).

### Metapleuron

The metapleuron is obscurely indicated. The metapleural-propodeal suture is distinct until it reaches a scrobe-like pit, approximately halfway between the hind wing and the hind coxa. Below this point a certain amount of fusion with the propodeum has occurred and the suture may or may not be indicated by a groove or carina. In species with a metanotal tooth there is typically a *transpleural carina* (Fig. 3), which extends from adjacent to the scrobe to the tip of the tooth, often appearing to form a continuous arc from the ventral end of the verticulus to the tip of the propodeal tooth.

### Propodeum

In the Chrysididae the propodeum occurs in two basic forms: somewhat box-like with a long dorsal surface in the Cleptinae and most Amiseginae; and in the remaining subfamilies abruptly declivitous posteriorly, without a dorsal surface. The condition seen in cleptines and amisegines is typical for most aculeates. However, unlike other aculeates the chrysidid propodeum is expanded laterally and is broadly visible in ventral view. This modification occurs in even the most primitive chrysidids, *Cleptes*, which are otherwise relatively unspecialized.

All chrysidids, except a few amisegine genera, such as *Amisega*, have a lateral propodeal tooth or angle (Figs 3, 4 and 5). This tooth can be very long and acute, as in *Cleptidea aurora*; deeply notched posteriorly and truncate, as in *Spintharina* (Fig. 142i, j); posteroventrally lobed, as in some *Chrysis*; or fan-like and lobulate, as in *Allocoelia* (Fig. 89d, e). In some *Holophris* this tooth may be represented by an angulate carina. Most chrysidids have this tooth located more than halfway above the middle of the propodeum, generally in a horizontal plane with the spiracle. However, in *Allocoelia* the 'tooth' is located below the middle and oriented vertically.

The sculpture and punctuation of the propodeum is important at the species and genus levels. All *Exochrysis* and some species of *Pleurochrysis* and *Chrysis* have a basomedial tooth or projection. In *Allocoelia* members of the *capensis* species group lack punctuation in a medial triangular area of the propodeum, or *propodeal enclosure*. In another example the presence of a medial ridge distinguishes species of *Hedychrum* (see Fig. 64l) from *Hedychridium*. The lack of carinae or enclosures is diagnostic for *Adelopyga*, *Haba* (see Fig. 58b), *Prochridium*, and *Minymischa*.

### Legs

Chrysidid legs are shaped for a fossorial habit and are generally unmodified; there are, however, some exceptions to this. The fore femur often has a basoventral angle or projection and/or carina in many elampines and *Parnopes*. Female *Muesebeckidium* (see Fig. 74e), *Minymischa* (Fig. 72b), and a few other elampine genera have broad, flattened



tarsomeres which appear prehensile. Many female *Parnopes* have elongate *rake spines* on the fore tarsomeres, and in one species, *P. grandior*, these spines occur on the hind tarsomeres as well.

The tarsal claws of many species have a subapical tooth, or teeth. A specialized feature of the Chrysidini and Parnopini is the absence of these teeth. Cleptinae, Allocoeliini, Loboscelidiinae, and most Amiseginae all have a single, submedial perpendicular tooth on each claw. Elampines have a variety of conditions. Several genera, including *Hedychridium* (see Fig. 62c), have a single perpendicular tooth. *Holopyga*, *Omalus*, *Philoctetes*, *Holophris*, *Pseudomalus*, *Muesebeckidium*, and *Elampus* have between one and four subsidiary teeth depending on the species (as in Fig. 68d, e). In *Minymischa* and *Adelopyga*, the number and arrangement of the subsidiary teeth is sexually dimorphic. The remaining elampine genera, except *Xerochrum* and *Prochridium*, have a subparallel tooth making the claw appear almost bifid. Unlike the rest of this tribe these two genera have simple, edentate claws.

## Wings

As in the other chrysidoid families, except Plumariidae, the chrysidid wing venation is much reduced (Fig. 6). The fore wing has, at most, six closed cells: costal, radial, medial, cubital, discoidal, and submedial. The hind wing has no closed cells, and at most has indications of the following veins: costa (C), subcosta + radius (Sc + R), first anal vein (A1), media + cubitus (M + Cu), and radial sector (Rs).

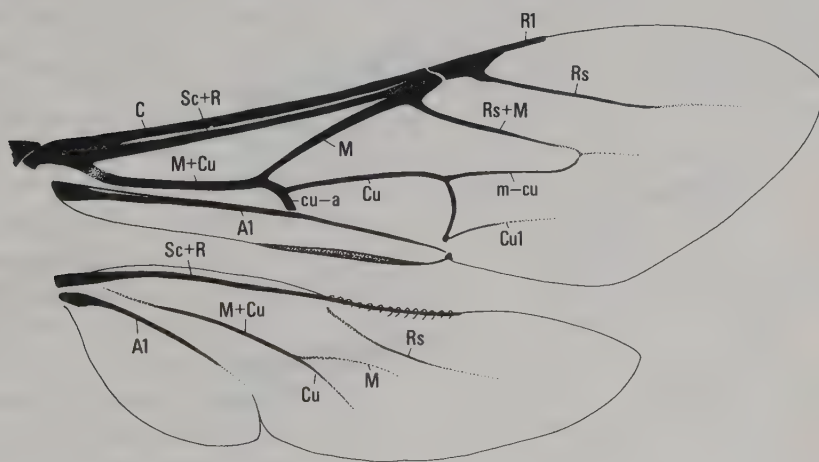


Fig. 6. Diagram of *Stilbichrysis serrulata* wings.

The most complete wing venation is found in the Chrysidini (Figs 6 and 7f). Further reductions in venation are important taxonomic characteristics. In the chrysidine fore wing, variations occur in the length and shape of Rs and the presence or absence of

$Rs+M$ ,  $Cu$ , and  $m-cu$ . Part of this reduction correlates with size; the smaller the individual the more reduced its wing venation tends to be, within limits. Many species of *Chrysidea*, *Caenochrysis*, and *Primeuchroeus* have the discoidal cell incomplete or absent, particularly due to reduction or loss of  $Rs + M$  and  $m - cu$ .

Other chrysidids, except *Loboscelidia*, have lost the sclerotized  $Rs + M$ ,  $m-cu$ , and  $Cu_1$  veins in the fore wing, and  $Rs$  tends to be less than half the length of the marginal cell (if this vein were extended to the wing margin (Fig. 7). In *Allocoelia* the presence or absence of a sclerotized  $Rs + M$  is an important species characteristic. Amisegines vary in the shape of  $Rs$  in a number of genera, including *Adelphe* and *Atoposega*. Here,  $Rs$  bends sharply and reaches the costal margin long before the wing tip, as indicated by the wing crease.

A number of different venations occur in Elampini. In *Holopyga*, *Omalus*, *Holophris*, *Philoctetes*, *Pseudomalus*, *Elampus*, *Muesebeckidium*, and some *Hedychridium* the  $M$  vein is strongly arched, nearly forming a right angle. The relative positions of  $M$  and  $cu-a$  when they join  $M + Cu$  also varies, with  $M$  meeting  $M + Cu$  well before  $cu-a$ , parallel

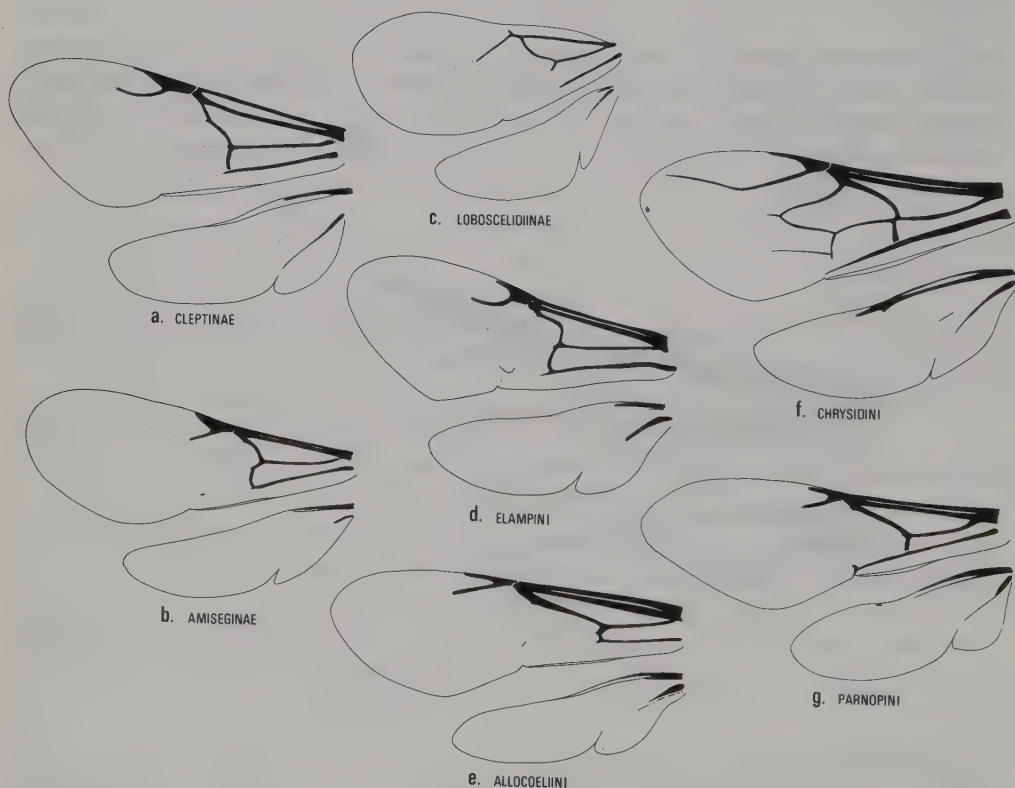


Fig. 7. Chrysidid wings representative of each subfamily and tribe. (a) *Cleptes purpuratus*; (b) *Amisega floridensis*; (c) *Loboscelidia maculipennis*; (d) *Holopyga ventralis*; (e) *Allocoelia quinquedens*; (f) *Chrysis angolensis*; and (g) *Parnopes edwardsii*.

with, or after cu-a. The most restricted venation occurs in *Microbridium*, where the venation is limited to the basal fourth or fifth of the wing and the veins are not clearly indicated (see Fig. 69).

*Loboscelidia* and *Rhadinoscelidia* have the most reduced venation of all the chrysidid genera. These wasps have no costal, Rs+M, m-cu, Cu, or stigmal veins (Fig. 7c).

The hind wing of all chrysidids has a well-developed anal lobe, at least stubs of C, Sc, and A1 (except loboscelidiines), and no anal lobe. Again, the most complete hind wing venation occurs in the Chrysidini (Fig. 6).

## Abdomen

### External segments

The number of segments in the visible chrysidid abdomen varies from subfamily to subfamily. Amiseginae, Cleptinae, and Loboscelidiinae all have five segments in males and four in females. Parnopini have the male abdomen four segmented, and the female three-segmented. Allocoeliines are unusual because they have two terga and three sterna visible. The remaining tribes have three-segmented abdomens in both sexes; although male *Exochrysis*, *Neochrysis*, *Ipsiura*, and *Pleurochrysis* have the fourth sternum visible.

The segments of the visible abdomen are generally heavily sclerotized and weakly intermusculated. Cleptinae, some amisegines, and loboscelidiines can flex the abdomen to some extent. In these subfamilies the abdominal venter is convex and not generally separated from the dorsum by a sharp edge. In the Chrysidinae the abdomen is virtually inflexible. The abdominal venter is flat or concave and clearly separated from the dorsum by a sharp lateral edge. Members of this subfamily assume a defensive posture by rolling up into a ball, completely covering the ventral half of the head and thorax with the abdomen. Where the abdominal venter is set off from the dorsum, the tergal plates have a sublateral weakening or joint, separating a plate called the *laterotergite*. This is the part of the tergum that wraps around the ventrolateral fold in the abdomen.

Abdominal segments I-V have spiracles. In allocoeliines, chrysidines, parnopines, and a few amisegines the spiracles on segments II-IV are located on the laterotergite. The spiracles are located either on the tergal fold, or on the tergite adjacent to the tergal fold in the remaining chrysidids.

Segment I has some diagnostic features in a few genera. In *Exochrysis*, for example, the anterolateral corners of the tergum are sharp. *Allocoelia capensis* has a vertical carina on the anterolateral corner. Other genera, such as *Hedychrum* may have carinulae or ridges radiating up the frontal declivity from the petiolar insertion. The sternum is divided by a sulcus into a narrow, anterior petiolar region and a broad, flat posterior plate. This anterior region is very narrow with a pronounced medial keel in amisegines. In the other subfamilies the petiolar region is broader and flattened, with two large submedial pits or depressions.

Cleptinae, Amiseginae, and Loboscelidiinae all have relatively smooth, tapering abdomens. Most amisegines have a lateral edge or fold extending through the second and, sometimes, third segment. *Duckeia cyanea* has S-II produced prow-like anteromedially. Aside from patterns of punctation in some amisegines, and coloration, the external abdomen has few useful characteristics in these subfamilies.

In *Allocoelia* T-II is the apical dorsal segment, although S-III is the apical ventral plate. T-II is elongate and may terminate in 2–5 apical teeth or angles, and the apical margin may also be thickened and/or rolled under (Figs 88 and 89c).

Elampines have relatively unmodified abdomens. Segment II is the longest of the three and it may be swollen posteriorly as in *Hedychridium crebrum*. The greatest variation occurs in T-III. In *Elampus* it is produced and snout-like apically (see Figs 53 and 54h–l). *Omalus* often have a transparent rim and an apicomedial notch (see Fig. 76b, c). In *Philoctetes* the apex of T-III may even become snout-like in a few species (see Fig. 80c). A very few Palaearctic and African *Hedychrum* and *Hedychridium* have the apical margin of T-III with 2–6 teeth or a medial notch (see Figs 62 and 64).

The structure of T-III varies most in Chrysidini. The dominant genus *Chrysis* can have from 0–8 apical teeth, although, except for a few rare, five-toothed forms, the number of teeth is always a multiple of two. Other genera have odd numbers of teeth, either 0, 1, or 3: *Chrysidea*, *Primeuchroeus* (Fig. 136), *Trichrysis* (Fig. 150), and *Caenochrysis* (Fig. 98); or 5: *Praestochrysis* (Fig. 134) and *Pentachrysis* (Fig. 130). A few unusual species of *Chrysis* from Africa and southern Europe have a strongly produced, and often laterally pronged, apicomedial truncation on T-III. *Brugmoia* (Fig. 95), some *Spinolia* (Fig. 139), and *Gaullea* (Fig. 121) have multiple, irregular, and usually asymmetrical apical teeth. The remaining chrysidine genera have smooth and edentate apical rims, a medial notch (often guarded laterally by an angular projection), or 2–8 teeth.

A subapical *pit row*, which normally consists of a series of large deep, circular or ovoid pits in a sunken transverse groove is also typical of the Chrysidini. This pit row is often preceded by a transverse swelling of various forms. The secondary loss of the pit row is characteristic of a few species in a variety of genera, for example *Spinolia theresiae* (Fig. 140f) and, typically, in the genus *Neochrysis* (Fig. 125).

In all Parnopines, even the primitive *Isadelphina*, T-III (or T-IV in males) is thick and more or less rounded apically with numerous small, irregular denticles, apically and subapically on the posterior margin (Fig. 156g). Parnopines also have a pair of sublateral foveae or transverse depressions on the apical tergum.

### Internal segments

Internal abdominal segments form the ovipositor tube in females (Fig. 8). The basal segment is composed of two relatively short and broad sclerites. The more apical sclerites are much more elongate with long slender apodemes. These segments are strongly curved laterally and form a sub-cylindrical telescoping tube. In Cleptinae this



tube is large and robust, composed of segments V–VIII (Fig. 8f). Amiseginae and Loboscelidiinae have a slender, needle-like tube also formed by segments V–VIII (Fig. 8e). In the Chrysidinae the tube is formed by segments IV–VII (Fig. 8b). However, in Allocoeliini T–III is also involved.

The chrysidid sting is quite reduced and essentially non-functional, a feature unique in the Aculeata. It functions more as an egg guide than a defensive structure. The valvulae are long and rod-like (Fig. 8a). The third valvula is apically setose and can be confused with the male gonocoxa when only the tip is showing.

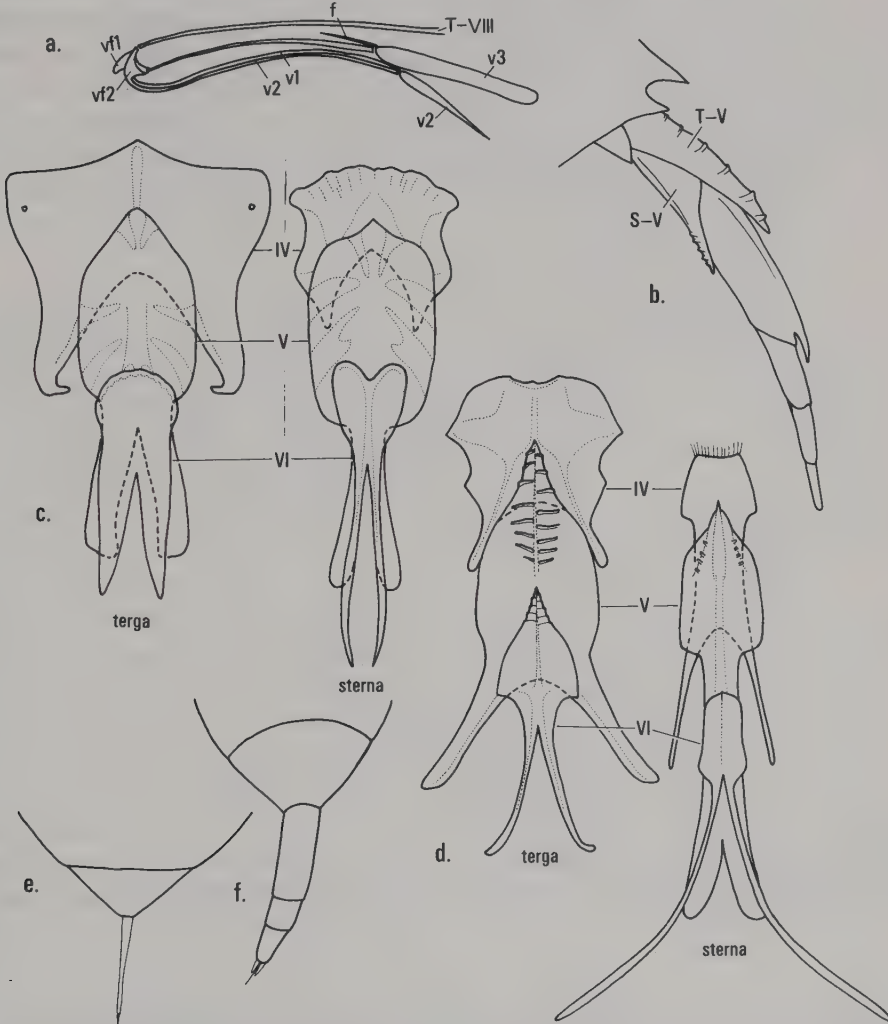


Fig. 8. The internal female chrysidid abdomen. (a) sting elements; f – furca, V1 – first valvula, V2 – second valvula, V3 – third valvula, Vf1 – first valvifer, Vf2 – second valvifer: (b) ovipositor, lateral: (c), (d) ovipositor tube segments, terga (left), sterna (right): and (e) (f) ovipositor and abdominal apex, dorsal. (a), (d) *Primeuchroeus ghilianii*; (b) *Stilbum cyanurum*; (c) *Odontochrydium trautmanni*; (e) *Amisega mocsaryi*; and (f) *Cleptes afer*.

The internal abdominal sclerites have not had much detailed study for species or generic distinctions because of the time involved in removing, clearing, separating, and slide-mounting these plates. There are two exceptions to this: segments IV and V in females, which may be quite distinctive and can be seen on a partly exerted ovipositor (Fig. 8*b, d*), and the *subgenital plate* (S-VIII) in males (Fig. 9*b*).

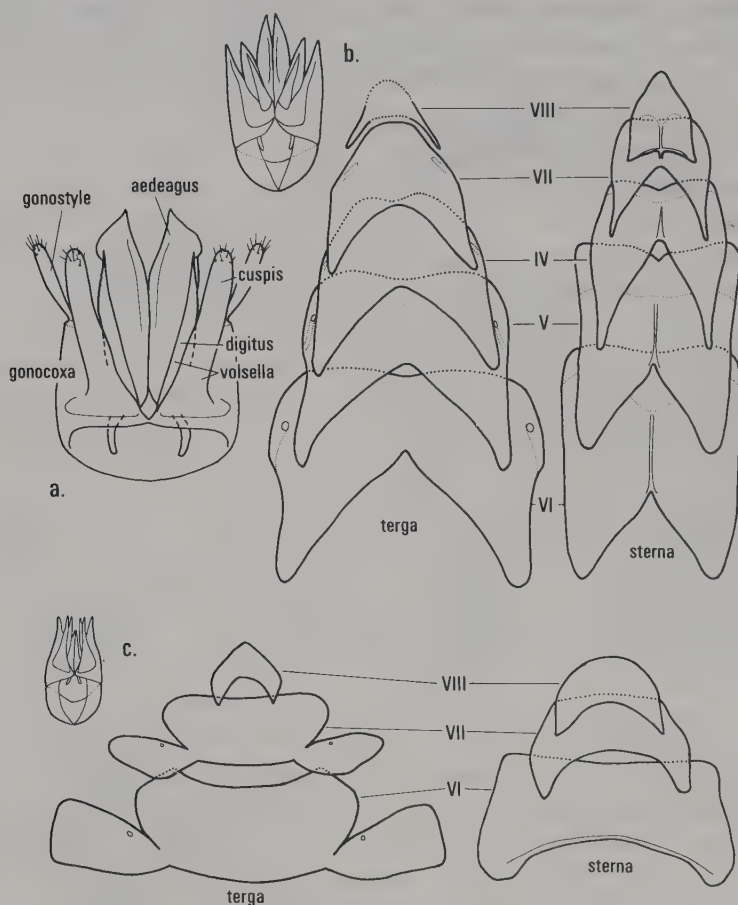


Fig. 9. The internal male chrysidid abdomen. (a) genital capsule, ventral; and (b), (c) genital capsule, ventral, terga (left) and sterna (right) of genital tube. (a) *Caenochrysis mathani*; (b) *Stilbum cyanurum*; and (c) *Amisega cooperi*.

In many Chrysidini the females have abdominal segments IV and V heavily sclerotized. One of the best examples is in female *Stilbum cyanurum* (Fig. 8*b*). T-IV has a series of heavy lateral ridges or partial annuli and terminates in a tooth-like structure. S-IV and T-V are heavily sclerotized apically and have one or two apicomedial teeth. S-V may also be heavily sclerotized and be either sharp or blunt apically. The degree of these modifications of the basal ovipositor tube varies, with its most extreme

development occurring in *Stilbum*. The function of this structure is discussed in chapter 4.

The ovipositor tube in most other Chrysidinae is unmodified, although it may attain extreme length in some species groups of *Chrysis*.

Males also have a genital tube composed of internal telescoping segments (Fig. 9). This tube is somewhat reduced in Loboscelidiinae and Amiseginae, with segments VII and VIII reduced to narrow transverse sclerites.

As in other aculeates, S-VIII forms the subgenital plate, lying against the ventral surface of the genital capsule. T-VIII is a membranous, somewhat U-shaped flap lying against the dorsum of the gonobase. S-VIII is generally an unremarkable transverse sclerite in most of the Chrysididae. However, in the Chrysidinae S-VIII is often highly modified, particularly in the Chrysidini. The shape of S-VIII may be a useful generic or species group character in this tribe. In most species S-VIII is somewhat bell-shaped in outline. However, in some *Chrysis* for example, it may be cruciform, subtriangular, or quadrate.

## Male genitalia

The genital capsule of chrysidids consists of a broad collar-like gonobase, gonocoxa, volsella, and aedeagus (Fig. 9a). Unlike most chrysidids the structure of the gonocoxa, volsella, and aedeagus shows little variation between taxa in the Amiseginae and Loboscelidiinae, although further study may reveal useful characters in these groups. The shape of the gonocoxa is a useful species or group character in the Cleptinae and Chrysidinae. The gonocoxa may be lobulate apically or along the inner margin, or actually have an articulated *gonostyle*, as in *Caenochrysis* (Figs 9a and 98d) and parnopines (Fig. 156b).

Throughout the Chrysididae the *volsella* is divided at the base into a slender *digitus* and *cuspis*. In some elampine genera, including *Minymischa* (Fig. 72e) and *Muesebeckidium* (Fig. 74f), the volsella is undivided, or the digitus has been lost secondarily. Parnopines have a broad, undivided, membranous volsella (Fig. 156b). The structure of the volsella is one feature that immediately separates cleptines from other chrysidids. In the Cleptinae the digitus is located medially or subapically on the cuspis, as it is in Bethylidae and most other aculeates (Figs 12f and 14e). The aedeagus is generally lanceolate, without lobes or other subsidiary structures. However, in the Cleptinae the aedeagus has a large subapical hook or row of teeth (Figs 12f and 14e). *Exallopyga* has a large spinose sub-basal lobe (see Fig. 56f). Many species of *Hedychridium* have a sub-basal tuft of setae on the outer surface of the aedeagus.

## Distinction of the sexes

We are commonly asked how to distinguish males from females in the Chrysididae. This subject has been given rather cursory treatment in the past and so we have decided to discuss this problem at some length.

Distinguishing the sexes is relatively simple in the Cleptinae, Amiseginae, Loboscelidiinae, and Parnopini. In these groups, females have one less external abdominal segment than males. Therefore, in the first three subfamilies males have five-segmented abdomens and females four. In the Parnopini males have four segments and females three. In addition, females often have the ovipositor tube partly exerted.

Determining the sex of a specimen in the Chrysidini, Elampini, and Allocoeliini without extracting the genitalia is much more difficult. Some genera are sexually dimorphic to some extent. Male *Allocoelia* have much longer tongues than females. In *Neochrysis*, *Pleurochrysis*, *Ipsiura*, and *Exochrysis* male S-IV is clearly visible, protruding beyond S-III for at least one-quarter of the length of S-III. S-IV is not visible in females. In *Hedychrum* the female S-III has a sub-basal transverse carinae and usually has an apicomedial tooth or small projection of some sort (see Fig.64c-e). Female *Elampus* have a row of short, erect, closely placed setae along the genal region behind the eye in lateral view (see Fig.54c). *Exallopyga* males have a stripe of dense appressed setae extending down the mid-line of T-III; and T-III is slightly notched apicomediaally (see Fig.56b).

Otherwise, in these three subfamilies the shape of S-III differs between the sexes. In males S-III is completely flat, and the membranous apex of S-IV is often visible. S-III in females generally has a triangular swelling, apicomediaally. Females can also be recognized if the ovipositor is exerted. However, if only the tip of the ovipositor is showing, this structure can be confused with the partly exerted male genitalia and vice versa. By close examination it is possible to see the slender, needle-like first valvulae between the second and third valvulae in females. Although the apices of the gonocoxae can resemble those of the third valvulae, and the apex of the aedeagus resembles that of the second valvulae, there is never a slender needle-like medial structure showing in males.

### Coloration

Chrysidids are generally colourful insects. The majority of species are metallic blue or green, but a wide variety of other colours may be present, also. Certain distinct colour patterns occur within each subfamily, many of which have an interesting geographic significance.

Loboscelidiines and Allocoeliines are exceptional in a number of ways, including their complete absence of metallic coloration. All members of these subfamilies are brown, black, or reddish. In addition, a few *Allocoelia* may have whitish markings.

Amiseginae are generally brown to black with metallic green to blue highlights on the face and thorax. The abdomen is usually non-metallic except in such rare genera as *Duckeia*.

The coloration of Cleptinae varies considerably from species to species. Several, including *Cleptidea scutellaris* and *Cleptes townesi* are non-metallic black. *Cleptidea* tend to be either black and orange, or blue, black, and red with some white markings. *Cleptes*



may be entirely metallic, as in *fritzi* or *purpuratus*, or more commonly the head and thorax may be brightly metallic and the abdomen predominantly brown or black. In several species groups the abdomen may be non-metallic red to black. There is also some degree of sexual dimorphism in many *Cleptes*; females tend to be more brassy or bronzy.

Chrysidini and Elampini are always metallic (except *Microchridium*) and a variety of distinct colour patterns can be seen in some taxa. Many of these patterns show an interesting geographic distribution. In most of the world these wasps are blue, green, or purplish, with few exceptions. A very different situation occurs in the Palaearctic Region, particularly in Europe. Here the dominant colour is blue or green on the head and thorax, with a coppery red to brassy abdomen. One of the most striking examples of this can be seen in *Chrysis*. The Palaearctic *ignita* group is structurally the same as the Nearctic *nitidula* group, and in fact the species *ignita* and *nitidula* are nearly indistinguishable, except that *ignita* and the other species in the *ignita* group are brightly bicoloured, with a coppery or brassy abdomen. Members of the *nitidula* group are concolorous blue or green. Species in southern Spain, North Africa, and the Middle East tend to be completely brassy or coppery. In southern Africa the majority of species are blue or green but some are brightly marked with purple, orange, red, and yellow. A very odd colour pattern occurs in the Philippine Islands; species of *Chrysis*, *Praestochrysis*, and *Stilbum* are purplish with a bright red head. In tropical Asia a number of species of *Chrysis*, *Praestochrysis*, *Primeuchroeus*, and *Trichrysis* are green except for a large brassy or coppery spot on either side of tergum-II. Certain Holarctic species of *Hedychridium*, including the *roseum* group in the Palaearctic, *semirufum* of North America, and *Xerochrum rubeum* have an essentially non-metallic red abdomen.

There are relatively distinct zoogeographic differences among species of *Parnopes*. The African and American forms all tend to be metallic blue, green, or purple, with the head, thorax, and abdomen concolorous. In all Palaearctic species the abdomen is often quite differently coloured from the rest of the body; tending to be non-metallic red, or, particularly in the Middle East and North Africa, the entire body is quite reddish.

White markings occur on numerous species in all the subfamilies and tribes except the Loboscelidiinae and Elampini. The presence of these markings may indicate species group relationships but are never present on all the members of a genus. Female *Adelphe* in the Amiseginae may have the outer surface of F-I and F-II white. About one-third of *Cleptidea* have white markings on the face, thorax, and abdomen. Two species of *Allocoelia*, *bidens* and *mocsaryi*, have white on the thorax and abdomen. In Chrysidini white is found on the mandibles, F-I and F-II, femoral and tibial apices, and T-III; particularly in *Spintharina*, *Spintharosoma*, and *Argochrysis*. There are two basic patterns of white markings on T-III in this tribe; either the entire apical rim is white or at least the teeth, as in *Brugmoia*, *Gaullea*, *Argochrysis*, and *Spintharina*, or T-III has a basolateral spot, as in *Neochrysis*, *Pleurochrysis*, *Ipsiura*, and *Exochrysis*. Many *Parnopes* have whitish markings on the tegulae, propodeal teeth, posterolateral angles of the terga, and even the apical denticles of T-I-III or T-IV.

Leg colour varies to some extent in the Chrysididae from black, to metallic blue or green, to yellowish. In the Elampini, Chrysidini, and Parnopini the femora and tibiae are usually metallic. The absence of metallic coloration is a useful species characteristic.

Wing coloration is generally unremarkable in chrysidids. Chrysidinae have evenly clear or brown-stained wings. Only the extremes in wing colour, either water clear as in *Philoctetes telfordi* or very dark brown as in *Chrysis angolensis*, are distinctive. Most *Cleptes* also have evenly stained wings; except for a few, like *semiauratus*, in which the wings are faintly brown banded. The wings of most *Cleptidea* have two relatively dark brown bands, one basal and one subapical. A few, as in the *xantha* group, have only a single subapical band, and *scutellaris* has unbanded, lightly stained wings. Loboscelidiines generally have mottled wings with spots of brown to yellow. In Amiseginae wing colour is not generally distinctive, with the membrane evenly tinted various shades of brown.

The colour of the tegulae and abdominal sternum is of particular importance in many elampine and parnopine genera. The presence or absence of metallic coloration on the tegulae and S-II and S-III is an important species characteristic in these groups, particularly in *Parnopes*, *Hedychridium*, and *Hedychrum*.

One cautionary note: the hue of metallic coloration can be altered, particularly if specimens are killed and/or preserved in solvent. In addition, rehydrating specimens can temporarily change the colour from purple to green, or green to coppery.

### *Sternal spots*

In the Chrysidini most species have two more or less, round, flat black spots on S-II. We discuss these spots in this section because, despite their distinctive nature, their function is unknown. However, they may be secretory. The size and shape of the sternal spots, the distance between them, or their absence are all useful taxonomic characters. They are often sexually dimorphic. A species of *Stilbichrysis*, *aurovirens* (see Fig. 146c), and a few species of *Brugmoia* may have these spots also on S-III.

### *Vestiture*

In general vestiture is not particularly conspicuous or useful as a diagnostic feature in most chrysidids. The overall colour of the erect setae on the head and thorax of some *Cleptes*, *Hedychrum*, and *Chrysis* may be an important species character. Many amisegines have long ocular setulae. The lack of microtrichia on the wing membrane in the fore wing medial cell is a diagnostic feature for the genera related to *Omalus*.

There is also a sexual component in patterns of setae. Many *Hedychridium*, *Brugmoia*, and *Chrysis* have dense appressed setae on the face, but it tends to be much denser in males. In the Amiseginae many genera have a long slender setose male flagellum. The length of the setae is a species character in these groups. Male *Exallopysga* have a stripe of appressed setae extending down the mid-line of T-III. In addition, a few male

*Hedychridium* and *Ceratochrysis* may have a tuft of long setae on the femur or tibia of the mid and/or hind leg.

### *Terminology*

Many of the following terms may be unfamiliar to other workers in Hymenoptera, and require definition.

*Brow*. Swelling often found above scapal basin and in front of ocelli.

*Epimeral plate*. Broad, flat, dorsal mesopleural plate delimited ventrally by omaulus and scrobal carina in Parnopini.

*Episternal sulcus*. Vertical groove extending from below fore wing to, or towards, the scrobal sulcus.

*F-I-II, etc.* Antennal articles (flagellomeres) following scape and pedicel.

*LID*. Least interocular distance.

*L/w*: Length versus width.

*Malar space*. Shortest distance from eye to mandible base.

*Malar sulcus*. Vertical sulcus extending from ocular margin to mandibular socket in Amiseginae.

*Midocellar area*. Usually depressed area in front of mid ocellus and sometimes delineated by carinules (mid ocellar carinae) arising from TFC.

*Midocellar lid*. Eyelid-like integumental fold behind mid ocellus.

*MOD*. Middle ocellus diameter.

*Omaulus*. Ridge or carina originating below pronotal lobe, descending obliquely and posteriorly to venter of mesopleuron.

*PD*: puncture diameter.

*Pit row*. Transverse row of pits located subapically on T-III in Chrysidini.

*Preoccipital hook*. Hook-like or tooth-like projection beneath head at end of preoccipital carina in Chrysidini.

*Preoccipital carina*. Transverse carina or welt located above occiput in Chrysidini.

*Pronotal length*. Submedian length of dorsal surface; usually compared with length of scutellum.

*Propodeal angle*. Lateral and often hook-like angle or projection of propodeum.

*Rs stub*. Radial sector when greatly shortened.

*S-I-II, etc.* Gastral sterna.

*S-II spots*. Two, often large, dark spots on S-II, sometimes coalesced.

*Scapal basin.* Usually concave area covered by rotation of scapes; area below TFC and brow.

*Scrobal carina.* Carina extending along dorsal margin of scrobal sulcus.

*Scrobal sulcus.* Longitudinal groove extending from scrobe either horizontally, or obliquely towards venter, across mesopleuron.

*Subantennal space.* Distance from lowest edge of antennal socket straight down to free edge of clypeus.

*Subgenal area.* Roughly triangular area below genal carina, defined ventrally by ridges or carinae.

*T-I-II, etc.* Gastral terga beginning at the base.

*TFC.* Transverse frontal carina located on or just above brow.

*Transpleural carina.* Carina extending across metapleuron from adjacent to scrobe usually to apex of propodeal angle, and then down to hind coxa.

*Verticaulus.* Vertical ridge extending ventrally from scrobal sulcus near scrobe, often joining omaulus to delimit lower part of mesopleuron.



---

## 7 GENERAL SYSTEMATICS

---

The superfamily Chrysidoidea consists of the families Sclerogibbidae, Plumariidae, Sclerogibbidae, Dryinidae, Bethylidae, Embolemidae, and Chrysididae. The majority of these families are highly specialized, and all are parasitoids. A variety of phylogenetic studies have been made of the Aculeata (Brothers 1975; Koenigsmann 1978; Rasnitsyn 1980) or Chrysidoidea specifically (Carpenter 1986). Based on these studies, and particularly that of Carpenter, the Chrysididae is the sister-group of Bethylidae. The other relationships among these families are discussed in detail by Carpenter (1986). Chrysididae + Bethylidae is the sister-group of the Sclerogibbidae + (Embolemidae + Dryinidae).

The family Chrysididae is a diverse group of parasitic wasps. Although the majority of species commonly encountered in the field are brilliantly coloured, it would be erroneous to assume that this is a family characteristic because several subfamilies and tribes are consistently non-metallic. However, there are a number of modifications which do clearly distinguish chrysidids from other wasps.

The most obvious characteristic of the Chrysididae, which is unique for this family, is the reduction of the number of external abdominal segments and the formation of an ovipositor or genital tube by invaginated distal segments. As a result, male chrysidids have five or fewer visible gastral segments and females four or fewer. Other diagnostic features are: flagellomeres with 11 articles in both sexes; labial palpus three-segmented and maxillary palpus five-segmented (rarely fewer segments); prosternum large and exposed (except in Amiseginae + Loboscelidiinae); fore wing venation with five closed cells (medial, submedial, costal, discoidal, and marginal) or fewer; hind wing without closed cells or jugal lobe; and propodeum usually with a lateral tooth or angle.

The higher classification of the Chrysididae has varied considerably through the years. Dahlbom (1854) made the first attempt to divide what he termed the Chrysidiformium into groups. These groups were the Cleptidae, Elampidae, Hedychridae, Chrysididae, Euchroeidae, and Parnopidae. This system was followed by Radoszkowski (1877). Aaron (1885) gave a somewhat different classification, dividing the Chrysididae into the Cleptinae, Elampinae, Chrysidinae, and Parnopinae. Mocsáry (1889) divided the family into Cleptinae, Amiseginae, Allocoeliinae, Ellampinae, Hedychrinae, Chrysidinae, and Parnopinae. He was the originator of the spelling of Ellampinae with a double 'l'. In addition, he was the first to recognize the Allocoeliinae and Amiseginae (1889), and later (1890) the Adelphinae. The first species in these groups were described in 1874*b* by Smith (*Allocoelia*), in 1888 by Cameron (*Amisega*), and in 1890 by Mocsáry (*Adelphe*). Dalla Torre (1892) used the classification of Mocsáry

(1889). Buysson initially followed Aaron's groupings, except that he split the Cleptinae off as a separate family in 1896, and then placed them back in the Chrysididae in 1899. In 1901 he made a major change in terminology and divided the family into 'tribes', Cleptidae, Heteronychidae, Euchrysidae, and Parnopidae. Bischoff (1913) further altered this latter system of Buysson, using the Heteronychinae, including Ellampini and Hedychrini, and Holonychinae, including Pseudochrysidini, Parnopini, Allocoeliini, and Euchrysidini. In his treatment of the chrysidids of southern Africa, Edney (1944–1956) followed Bischoff's classification. Linsenmaier (1959a), in his treatment of the European chrysidids, used a simplified version of Mocsáry's groupings, dividing the family into the Cleptinae, Chrysidinae, Parnopinae, and Allocoeliinae.

The position of Loboscelidiinae has varied considerably. Westwood (1874) placed *Loboscelidia* in the Diapriidae. Ashmead (1902) considered these wasps to be a tribe of Cynipidae. Maa and Yoshimoto (1961) treated them as family Loboscelidiidae in the Chryridoidea. *Loboscelidia* was then placed back in the Proctotrupoidea by Riek (1970). Finally, Day (1978) made a detailed morphological study of *Loboscelidia* and determined that it belonged in the Chrysididae, as the sister-group of the Amiseginae.

The classification of Bohart and Kimsey (1982) is the system used in this study, with considerable modifications. Principal among these is the treatment of the Elampini, Allocoeliini, Chrysidini, and Parnopini as tribes in the subfamily Chrysidinae. The reasoning behind the change in status of these groups is given in more detail later, but is based on the large number of shared derived characters among them. In addition, we are following Kimsey (1986a) in viewing the Allocoeliini as a sister-group of the Chrysidini + Parnopini.

Cleptinae includes the genera *Cleptes* and *Cleptidea*. These are the most primitive chrysidids. Despite extensive studies we have been able to distinguish few derived characteristics for this subfamily that are not diagnostic for the family as a whole. Cleptinae is the sister-group of the rest of Chrysididae.

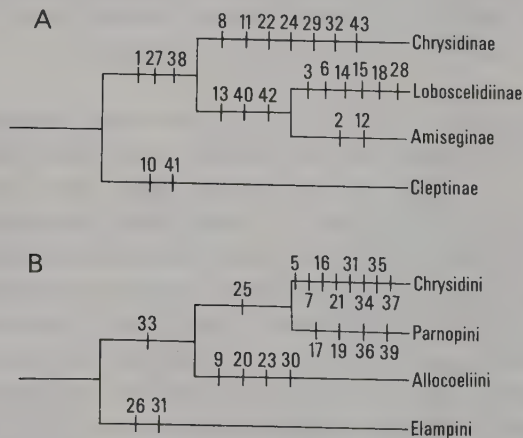


Fig. 10. Phylogenetic relationships of the chrysidid subfamilies and tribes. Numbers correspond with those given for derived character states in the text.

The number of amisegine taxa has grown tremendously since Mocsáry first proposed the subfamily in 1889, and now comprise 30 genera. It is the sister-group of the Loboscelidiinae, based on the highly modified ovipositor plates and the obscured prosternum. In addition, both are parasites of phasmatid eggs.

Loboscelidiinae includes two genera, *Loboscelidia* and *Rhadinoscelidia*.

The so-called higher chrysidids (Chrysidinae) are closely related and are united by a large number of derived characteristics, including the position of the scrobal sulcus, reduced number of visible gastral segments, flat or concave gastral sternum, and absence of an occipital carina. Furthermore, all are nest parasites of wasps and bees, with the exception of *Praestochrysis*.

### PHYLOGENETIC DISCUSSION

The phylogenetic relationships among subfamilies and tribes are represented by Fig. 10. Derived characteristics used to construct this tree are discussed below.

1. Scapal basin. The presence of a flat or concave, differentially sculptured, scapal basin (Fig. 2*b*) occurs throughout the Chrysididae, except in the Cleptinae and Loboscelidiinae. The lack of a scapal basin in cleptines is considered to be primitive, since the facial structure in this group closely resembles that of bethylids and other non-chrysidid chrysidoids. In loboscelidiines the absence of a scapal basin is secondarily derived as a result of the dorsal elongation of the clypeus and formation of a frontal projection which surrounds the antennal sockets (Fig. 2*c*).

2. Malar sulcus. Throughout the Chrysididae only the Amiseginae have a vertical sulcus that traverses the malar space from the posterior mandibular condyle to the ocular margin (Fig. 16*e*). In a few other groups in the Chrysidinae a line of appressed setae can be found in this position. The presence of this sulcus is considered derived.

3. Antennal position. Another of the peculiarities of the loboscelidiines is the position of the antennae. In all other chrysidids the clypeus is short, and the antennal sockets, located on the dorsal clypeal margin, insert on the lower third or fourth of the face. This position is considered primitive in chrysidids. Loboscelidiinae have an elongate clypeus and shortened frons. As a result the antennae insert mid face and are located on a bilobate or trilobate shelf or projection, with the sockets oriented horizontally (Fig. 2*c*).

4. Genal carina. Most chrysidid genera have an ecarinate gena, which is typical of cleptines and is considered the primitive condition in this family. However, in the Chrysidinae there is one, or occasionally two, carinae extending from the mandibular socket dorsally along the ocular margin (Fig. 3); a derived condition.

5. Transfrontal carina. The presence of a transverse carina across the frons, or TFC (Fig. 2*b*), is a diagnostic feature of the Chrysidini, and occurs only rarely in other

groups. It has been secondarily lost in *Chrysura*, *Spinolia*, and a few species in other genera.

6. Cervical projection. Loboscelidiines have the occipital region of the head produced posteriorly into a large fringed lobe (Fig. 2c). This condition is unique in the Chrysididae and is considered derived.

7. Preoccipital carina. In the majority of genera the back of the head is evenly rounded or somewhat indented above the occipital foramen. This condition is primitive. Chrysidini have a transverse preoccipital carina (Fig. 2a), considered derived. This carina often ends laterally in a hook-like projection.

8-9. Tongue length. Bethylids, cleptines, amisegines, and loboscelidiines have the tongue lying flat in the oral fossa. The cardo is short and broad, and the galea and glossa are short lobes. In the derived condition, in Chrysidinae, the tongue base protrudes from the oral fossa, the cardo is relatively long and slender, and the galea and glossa are elongate (8), attaining extreme lengths in *Parnopes*. A further derivation occurs in Allocoeliini. Tongue length is sexually dimorphic in these wasps, with the male tongue considerably longer than the female (9).

10. Pronotal shape. Homologies between the shape of the chrysidid pronotum and that of other Chryridoidea are difficult to ascertain. However, the quadrate pronotum with a short, flared anterior collar seems to be the least specialized form in this family, and most closely resembles the shape typical of other chrysidoids. The derived condition can be seen in the Cleptinae where the pronotum is narrowed submedially with an anteriorly arcuate, submedial sulcus, and a broad, flared, and often foveolate collar (Fig. 12).

11. Pronotal lobe position. Despite the specialized modification of the cleptine pronotum, the proximity of the pronotal lobe to the tegula is primitive. In this subfamily, as well as Loboscelidiinae, Amiseginae, and Bethylidae, the pronotal lobe is immediately adjacent to the tegula. The derived condition occurs in the Chrysidinae where the lobe is separated from the tegula by at least one-third the length of the tegula.

12. Pronotal pit. Throughout the Chrysididae the pronotum is sculptured in a variety of ways. However, only in the Amiseginae is there a discrete pit at the origin of the pronotal lobe (as in Fig. 20). The presence of this pit is considered derived; its function is unknown.

13. Prosternal shape. Unlike other chrysidoid families, except Scoliidae, most chrysidids have a large, exposed prosternum. The propleura meet ventrally for less than half the distance from the apex of the collar to the prosternum. This is a derived condition characteristic of the family. However, within the Chrysididae the amisegines and loboscelidiines have the prosternum largely obscured by the propleura (Fig. 4), as it is in most other aculeates. The condition of the prosternum in Amiseginae and Loboscelidiinae could therefore be taken as a primitive feature retained by these



subfamilies. Considering the specialized nature of these groups, a more parsimonious explanation would be that the short, hidden prosternum is actually a secondary derivation in the Chrysididae. Therefore, we are treating this modification as the derived condition.

14. Hinged pronotum. Throughout the Chryridoidea the pronotum is freely hinged to the mesothorax. This is the typical situation in chrysidids. However, in the Loboscelidiinae the pronotum is immovably fused to the mesothorax; a derived condition.

15. Tegular clip. Another unusual and unique feature of loboscelidiines is the presence of a linear ridge on the mesopleuron, which fits over the outer edge of the tegula, holding the tegula down over the wing bases (as in Fig. 48). The presence of this 'tegular clip' is considered derived.

16. Scrobal sulcus. Although most Chrysidinae have a scrobal sulcus, the orientation and extent of the sulcus is a group character. In the primitive configuration found in Elampini and Parnopini the scrobal sulcus is short and generally shallow, extending obliquely towards the venter from the scrobal pit (Fig. 5). The derived condition occurs in the Chrysidini where the scrobal sulcus is broad and often deep, extending horizontally from the scrobe to the epicnemium, effectively bisecting the mesopleuron. Most allocoeliines lack a scrobal sulcus. In the two species that have one, *latinota* and *capensis*, it is a broad irregular pit that extends anteriorly a short distance from the scrobe.

17. Mesopleural plate. Modifications of the chrysidid mesopleuron provide useful group characters. Unlike other chrysidids, parnopines have the epimeron clearly set off from the rest of the mesopleuron, as a broad, flat plate (Fig. 5). This epimeral plate has a posterior lobe above the scrobe and is delimited ventrally by the scrobal carina and omaulus. The formation of this plate is considered derived.

18–20. Tegula size. In the majority of chrysidids the tegula is subovoid and covers the base of the fore wing. However, three different derived conditions occur in this group. The loboscelidiine tegula is enlarged and subrectangular, completely covering both wing bases and held in place by a ridge on the mesopleuron (18). Parnopines also have an enlarged tegula that extends posteriorly over both wing bases, but it is subovoid and not clipped laterally against the mesopleuron (19). Finally, in allocoeliines the tegula is much reduced and partly obscured by a lateral bulge of the scutum (20).

21. Scutellar lobe. The scutellum anterolaterally extends smoothly into the fore wing fossa in all chrysidids except the Chrysidini and the elampine genus *Exallopyga*. They have an anterolateral scutellar lobe, the 'scutellar tubercle' of French (1985), which projects posteriorly into the wing fossa (as in Fig. 56e). The presence of a scutellar lobe is derived.

22. Metapleural carina. The metapleuron is relatively unmodified and ecarinate in most chrysidoids; this is the primitive condition. However, Chrysidinae have a

transverse metapleural carina that extends from near the scrobe to the propodeal projection (Fig. 3). The carina may terminate in a large lobe, particularly in the Chrysidini.

23. Propodeal tooth. Throughout the Chrysididae the propodeal angles are more or less located in a horizontal plane with the spiracle. This orientation is the primitive condition in this family. In allocoeliines the propodeal angle is oriented obliquely between the spiracle and hind coxa. In addition, the propodeal angles are broad and usually lobulate.

24. Propodeal shape. In the Chrysidoidea the propodeum is generally box-like with a long dorsal surface. A specialized form occurs in the Chrysidinae, where the propodeum is essentially wedge-shaped (Fig. 3), with no dorsal surface, and abruptly declivitous posteriorly.

25–26. Claw dentition. Most chrysidoids have a single, subperpendicular tooth on all of the tarsal claws. This is also the condition seen in Cleptinae, Amiseginae, Loboscelidiinae, Allocoeliini, and primitive Elampini. However, two specialized conditions occur in the Chrysidinae. The Chrysidini + Parnopini have edentate tarsal claws (25). The majority of Elampini have more than one subsidiary tooth, typically 2–5 (26).

27–28. Fore wing venation. A major change in wing venation occurs between Cleptinae and other chrysidids. In cleptines Rs+M originates considerably below the stigma, often one-half to two-thirds of the way along the media (Fig. 7a). This is also the most common position in other chrysidoids and is taken here to be the primitive condition. In the remaining chrysidid subfamilies Rs+M originates at or near the apex of M, just below the stigma (Fig. 7) (27).

Although all chrysidid wing venation is reduced, the most extreme reduction occurs in loboscelidiines where the hind wings have no sclerotized veins, and their fore wings are without a stigma. They also lack costal and cu-a veins (Fig. 7c) (28).

29–31. Gastral segments. Aculeates in general have six visible gastral segments in females and seven in males. The primitive condition in chrysidids is four in females and five in males and is found in Cleptinae, Amiseginae, and Loboscelidiinae. Several derived conditions occur in this family. The first (29) is the general reduction of one or more gastral segments to three or fewer in females, and four or fewer in males (retained in Parnopini). Allocoeliines are further reduced with two apparent segments in both sexes, although S-III is clearly visible (30). Both Elampini and Chrysidini have three-segmented abdomens, with no sexual dimorphism (31). The condition in allocoeliines and parnopines suggests that the three-segmented abdomen has in fact evolved twice, particularly since no other abdominal characters indicate a close relationship between elampines and chrysidines.

32. Gastral sternum. A derived feature of the Chrysidinae is the flat or concave sternum. This abdominal characteristic is unusual in the Aculeata. Coupled with the

flat sternum, the terga have a discrete lateral lobe, or laterotergite, which is sharply folded under ventrally.

33. Abdominal spiracles. All chrysidids have some indication of a laterotergite, and even in some cleptines it is at least indicated by a fold. A laterotergite was not found in the other non-chrysidid chrysidoids examined. This fold becomes a sharp crease or ridge in other chrysidids. The position of the spiracles on segments II–IV are assumed to be primitive in Cleptinae, Amiseginae, and Loboscelidiinae, where they are located more dorsally on the tergum proper (Fig. 9c). Within the Chrysidinae the spiracles are in the primitive position in Elampini. In the remaining chrysidine tribes the spiracles are located on the laterotergite (Fig. 9b), a derived condition.

34–36. Apical tergum. In the Chrysidinae the simplest and least specialized form of T-III is seen in elampines where the apical margin is smooth and evenly rounded. Several derived conditions occur in this subfamily. Chrysidines have a pit row that extends subapically along the margin (Fig. 3) (34). This pit row is found in all but a few species and in the genus *Neochrysis*. It is apparently a secondary reduction in these groups, since traces of the pit row can still be found. In Chrysidini the apical rim of T-III is usually dentate or at least strongly angulate (35). Parnopines have the hind margin of the apical tergum rolled under and thickened, with numerous irregular denticles and two oblique subapical foveae, one on either side of the mid-line (as in Fig. 156g) (36).

37. Sternum II. A unique, derived feature of the Chrysidini is the presence of two dark spots on S-II. These spots vary from broadly rounded, to comma-shaped, to contiguous.

38–39. Volsellar structure. Typically, in Aculeata the volsella has both a digitus and cuspis, and the digitus forms a sort of opposable lobe on the cuspis. This arrangement, with the digitus articulated with the apical half of the cuspis, also occurs in cleptines (as in Fig. 12f), and is assumed here to be the primitive condition. In the Amiseginae + Loboscelidiinae + Chrysidinae the digitus and cuspis articulate basally and both are generally long and slender (Fig. 9a) (38). A further modification of the volsella occurs in Parnopini, where the volsella is broad and membranous without a digitus (Fig. 156b) (39).

40. Ovipositor tube. Formation of an ovipositor tube is a derived character unique to the Chrysididae in the Aculeata. Within this family the tube is generally robust with all of the involved segments well developed. The ovipositor of the Amiseginae + Loboscelidiinae is considered derived. In this group, segments V–VII are highly elongate and slender, appearing needle-like (Fig. 8e).

41–43. Hosts. Assuming that chrysidids evolved from a scolebythid-like ancestor, then the primitive host would be a prepupal moth or beetle or similar inactive, harmless, and cryptic form. Therefore, cleptines which parasitize prepupal sawfly larvae, attack a specialized type of host (41). Two different specializations occur in



chrysidids. The first involves parasitism of phasmatid eggs in the Loboscelidiinae + Amiseginae (42). The second group, Chrysidini, are nest parasites of non-social wasps and bees, placing their eggs in the host cells, and either feeding on the host + provisions, or the prepupal host (43).

The Chrysididae consists of three major phylogenetic lines, the Cleptinae, Amiseginae + Loboscelidiinae, and Chrysidinae. Cleptinae is the sister-group of the other three subfamilies. The Loboscelidiinae, Amiseginae, and Chrysidinae constitute a monophyletic group based on the subapical origin of Rs+M on M, digitus and cuspis joined basally, and formation of a scapal basin. The Amiseginae + Loboscelidiinae lineage is characterized by elongation and reduction of the ovipositor plates, reduction of the prosternum, and parasitism of walking stick eggs.

### KEY TO SUBFAMILIES AND TRIBES OF CHRYSIDIDAE

- 
1. Gaster with 5 external segments in males and 4 in females; sternum strongly convex; propodeum generally box-like in profile, with some horizontal dorsal surface 2  
 Gaster with 4 or fewer segments in males and 3 or fewer in females; sternum strongly concave or flat; propodeum abruptly declivitous posteriorly, short and somewhat wedge shaped, without dorsal surface (Chrysidinae) 4

---

  2. Face above antennal sockets convex, without indication of scapal basin; clypeus deeply emarginate below each antennal socket and with a protruding medial truncation (Fig. 12e); pronotum narrowed submedially, bisected by transverse groove (Fig. 12a-c); female ovipositor robust (Fig. 8f); male volsella with digitus attached near apical third of cuspis (Fig. 12f) *Cleptinae*, p.52  
 Face above antennal sockets flat or concave with some indication of scapal basin (Fig. 2b), or antennae insert on frontal projection (Fig. 2c); clypeus not deeply emarginate below each antennal socket, without protruding medial truncation (Fig. 2b) 3

---

  3. Antennal sockets horizontal and located mid face on projection (Fig. 2c); head with large cervical projection; tegula large covering both wing bases and held in place by ridge on mesopleuron (Fig. 48); fully winged, fore wing venation reduced without costal vein or stigma (Fig. 7c) *Loboscelidiinae*, p.141  
 Antennal sockets vertical and located on lower fourth of face; head without cervical projection; tegula small, covering only fore wing base and without associated ridge on mesopleuron; fore wing with costal vein and stigma (Fig. 7b), or strongly brachypterous *Amiseginae*, p.71
-



4. Gaster with 2 visible terga; body without metallic coloration; tegula small and partly hidden by notum; propodeal tooth originating just above hind coxa

*Allocoeliini*, p.272

Gaster with 3 or 4 terga; body partly or entirely metallic (except *Microchridium*); tegula at least normal-sized, not obscured by notum; propodeal tooth originating adjacent to metanotum, well above hind coxa

5

- 
5. Tegula large, covering both wing bases; apical abdominal tergum with 2 subapical foveae, and apically thickened with numerous small irregular teeth or denticles (as in Fig.156)

*Parnopini*, p.574

Tegula normal-size, only covering fore wing base; apical abdominal tergum without 2 subapical foveae, at most slightly thickened apically, apical rim simple, dentate, denticulate, serrate, or medially notched

6

- 
6. T-III with subapical pit row (sometimes faint) (Fig. 3), and tarsal claws edentate; occiput with transverse welt or carina above foramen, often ending in a 'hook' (Fig. 2a) (rarely absent); mesopleuron with scrobal sulcus horizontal (rarely absent)

*Chrysidini*, p.276

T-III without pit row and tarsal claws dentate (rarely edentate); occiput without welt, carina, or 'hook'; mesopleuron with scrobal sulcus oblique

*Elampini*, p.152

---

---

## 8 SUBFAMILY CLEPTINAE

---

Cleptines are generally medium-sized (usually 4–6 mm long) chrysidids. They can be immediately recognized by the convex face, robust mandibles with two or more teeth, and pronotum medially narrowed with a transverse sulcus. The abdomen has a convex venter and five visible segments in males, four in females.

These wasps are generally rare but may be locally abundant due to outbreaks of their hosts. They are parasitic on the prepupal larvae of tenthredinid sawflies.

### DIAGNOSTIC CHARACTERISTICS

1. Face convex, with medial groove extending from mid ocellus to dorsal clypeal margin.
2. Clypeus deeply emarginate beneath each antennal socket, with protruding medial truncation.
3. Mandibles short and basally broad, particularly in females, with two or more apical teeth.
4. Tongue short, lying flat in oral fossa; maxillary palpus five-segmented; labial palpus three-segmented.
5. Occipital carina complete and well developed.
6. Pronotum medially narrowed, divided by transverse groove, lateral lobe touching tegula; often with medial groove and secondary groove or pit row along posterior margin.
7. Prosternum large and exposed basally by narrowly touching propleura.
8. Scutum with complete notauli and parapsides.
9. Mesopleuron with subalar fossa and scrobal pit, scrobal sulcus and omaulus occasionally present.
10. Metanotum with elevated and posteriorly foveate medial disk, two-thirds to one-half scutellar length.
11. Propodeum with long dorsal surface and vertical posterior declivity, laterally angulate to dentate.
12. Tarsal claws with single medial or subapical tooth.
13. Fore wing with venation reduced, Rs short, stigma short and broad without indication of R1, discoidal cell weakly sclerotized or completely absent, medial vein arising at or before cu-a, Rs + M arising submedially on M.

14. Hind wing with short remnant of costa, subcosta, and A1.
15. Adominal venter convex, five external segments in males and four in females.
16. Ovipositor robust and unspecialized, composed of segments V–IX.
17. Male S–VIII with ovoid apex, narrowly constricted medially, with T-shaped basal apodeme.
18. Volsella with digitus attached on apical half or third of cuspis.
19. Aedeagus with broadly rounded apical lobes.

## SYSTEMATICS

The Cleptinae comprises two genera, *Cleptes* and *Cleptidea*, and approximately 90 species. Based on information currently available these genera are completely allopatric. *Cleptes* is Holarctic, with one species occurring in Argentina. *Cleptidea* occurs in tropical areas of the Neotropical Region. This subfamily is the most primitive member of the Chrysididae.

## KEY TO GENERA OF CLEPTINAE

---

Tarsal claw with small, perpendicular medial tooth (Fig. 12*d*); pronotum simple medially or rarely with shallow medial groove joining groove or depression along posterior margin (Fig. 12*a–c*); eyes generally small and following head contour (Fig. 12*e*); malar space often 1.5 MOD or more *Cleptes* Latreille, p.53

Tarsal claw with large subparallel tooth (Fig. 14*c*); pronotum with deep medial groove joining transverse groove or depression along posterior margin (Fig. 14*f*); eyes large and bulging; malar space less than 1.5 MOD (Fig. 14*a*)

*Cleptidea* Mocsáry, p.65

---

### *Cleptes* Latreille (Figs. 4a, 7a, 8f, 11, 12)

*Cleptes* Latreille 1802:316. Type: *Sphex semiaurata* Linnaeus 1761. Monobasic.

*Lustrina* Kurian 1955:86. Type: *Lustrina assamensis* Kurian 1955:87. Monobasic. New synonymy.

*Cleptes* (*Holcocleptes*) Móczár 1962:118. Type: *Cleptes aerosus* Förster 1853. Monobasic and orig. desig.

*Cleptes* (*Leiocleptes*) Móczár 1962:118. Type: *Cleptes nitidulus* Fabricius 1793. Orig. desig.

*Cleptes* (*Zimmermannia*). Móczár 1962:120. Type: *Cleptes ignitus* Fabricius 1787. Orig. desig.

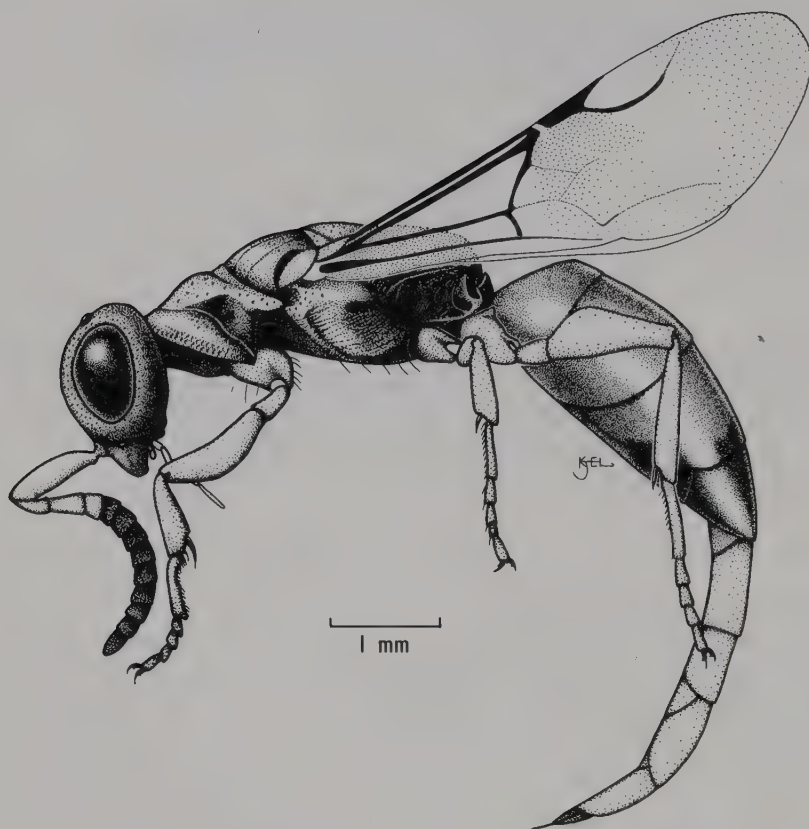


Fig. 11. *Cleptes semiauratus*, female.

*Cleptes* (*Melanocleptes*) Móczár 1962:122. Type: *Cleptes morawitzi* Radoszkowsky 1877. Orig. desig.

*Cleptes* (*Chrysocleptes*) Móczár 1962:122. Type: *Cleptes putoni* Buysson 1886. Orig. desig.

*Cleptes* (*Oxycleptes*) Móczár 1962:124. Type: *Cleptes orientalis* Dahlbom 1854. Monobasic and orig. desig.

*Cleptes* (*Neocleptes*) Kimsey 1981:816. Type: *Cleptes fritzi* Kimsey 1981. Monobasic and orig. desig.

### Generic diagnosis

Head (Fig. 12e) as wide as long or longer; eyes small, following head contour, not bulging; mid ocellus equal to or smaller than antennal socket; malar space usually



more than 1 MOD; mandibles generally robust, with three or more apical teeth; mesopleuron (Fig. 4a) with scrobe, scrobal sulcus, and omaulus present in some species; metanotum weakly obtuse or flat in profile; propodeal tooth triangular and generally shorter than broad; tarsal claws with one perpendicular submedial tooth (Fig. 12d); fore wing discoidal cell indicated by stained vein remnants.

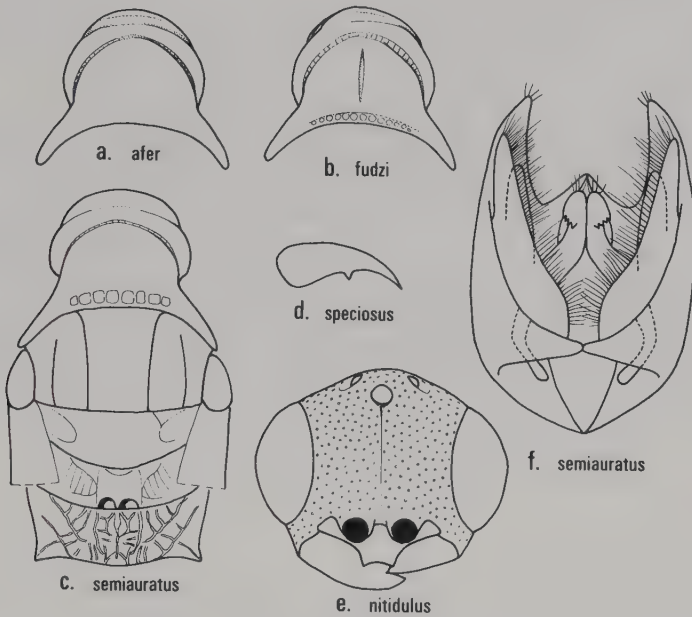


Fig. 12. *Cleptes*, male. (a), (b) pronotum, dorsal; (c) thoracic dorsum, wings removed; (d) hind tarsal claw; (e) face; and (f) genital capsule, ventral.

## Hosts

These wasps are parasites of tenthredinid sawflies. In North America Smith (1962) reared *speciosus* (as *provancheri*) from *Neodiprion* sp., Dahlsten (1961, 1967) reared *purpuratus* from *Neodiprion* sp., and Darling and Smith (1985) reared *semiauratus* from *Nematus hispidae* Smith. In Europe Gauss (1964) reared *semiauratus* from *Nematus* sp. and *Pristophora* sp. Mocsáry (1889) listed *Nematus ribesii* Scopoli as the host of *nitidulus* and *semiauratus*.

## Distribution

*Cleptes* is primarily a Holarctic genus, with 46 species in Europe and 8 in North America. One European species, *semiauratus*, has become established in the north-eastern United States. In addition, there is one species in Argentina and eight in Asia, occurring as far south as Vietnam.

## Discussion

Since the time of Dahlbom, *Cleptes* was thought to consist of two major groups; species with metallic coloration, *Cleptes s. s.* and non-metallic species, *Heterocoelia*-types (Dalla Torre 1892; Mocsáry 1889; Linsenmaier 1959a). Móczár (1951, 1962) did not mention *Heterocoelia nigriventris* Dahlbom. Obviously, none of the first three authors ever examined the type of this genus. However, Móczár did see the type. This species is not a chrysidid, but belongs in the bethylid subfamily Mesitiinae, as discussed by Móczár (1971).

*Cleptes* is the largest and most widespread of the cleptine genera, including 69 species. Móczár (1962) and Kimsey (1981) divided the genus into eight subgenera. Re-examination of *Cleptes* on a world basis indicates that these subgeneric groupings are far from discrete, particularly when the Asian species are considered. For this reason we synonymize the subgenera and, instead, divide *Cleptes* into species groups.

These groupings are based to a large extent on the descriptions of Móczár (1951, 1962), Tsuneki (1959), and Linsenmaier (1959a, 1968) as we have not been able to see many of the types. As a result, further study may indicate the need for more species groups than given here, and some groupings may also prove to be artificial.

## KEY TO CLEPTES SPECIES GROUPS

- |  |                               |
|--|-------------------------------|
| 1. Terga entirely metallic   | 2                             |
| Terga entirely blackish, or reddish, or at most partly metallic  | 3                             |
| <hr/>  |                               |
| 2. Pronotum evenly curved posteriorly, without subapical groove or pits (Fig. 12a)   | <i>orientalis</i> group, p.57 |
| Pronotum depressed posteromedially, with subapical pit or pits (Fig. 12b, c)   | <i>schmidti</i> group, p.58   |
| <hr/>  |                               |
| 3. Basal terga entirely blackish, or black with metallic coloration laterally; pronotum without posterior pits or groove           | 4                             |
| Basal terga red or chestnut coloured, and may be metallic laterally; pronotum posteriorly unmodified, or with pits, or with groove | 5                             |
| <hr/>  |                               |
| 4. Abdomen with basal segments often metallic laterally, and apical segments almost entirely metallic                              | <i>alienus</i> group, p.57    |
| Abdomen entirely black, without metallic highlights  | <i>satoi</i> group, p.58      |
| <hr/>  |                               |
| 5. Pronotum simple posteriorly, without groove or pits along posterior margin or along mid-line                                    | <i>nitidulus</i> group, p.5   |

Pronotum with groove or pits along posterior margin and mid-line	6
6. Pronotum with groove along mid-line (Fig. 12 <i>b</i> )	<i>aerosus</i> group, p.57
Pronotum without groove along mid-line	<i>semiauratus</i> group, p.58

### *Cleptes aerosus* group

This species group comprises the species placed in *Holcocleptes* Móczár. The pronotum is distinctively sculptured with a groove along the mid-line, as well as a transverse groove or depression along the posterior margin (Fig. 12*b*). In addition, the body, particularly the abdomen, is coarsely punctate. These are all Palearctic species.

### *Cleptes alienus* group

This group of two species is characterized by having a simple pronotum, without a posterior groove or row of pits, or groove along the mid-line (Fig. 12*a*), and the basal terga are black, with some metallic coloration laterally.

These species were placed in *Cleptes* (*Leiocleptes*) by Móczár (1962). However, the abdominal coloration is quite distinct from that of other members of *Leiocleptes*. Both *alienus* and *speciosus* are North American. Males of the two are virtually indistinguishable.

### *Cleptes nitidulus* group

The *nitidulus* group includes Holarctic species formerly placed in the subgenera *Leiocleptes* and *Zimmermannia*. Members of this group are characterized by the unmodified pronotum and the abdominal coloration, which closely resembles that of the *semiauratus* group. The basal terga are reddish or yellowish brown and the apical segments are blackish or metallic.

### *Cleptes orientalis* group

The *orientalis* group is characterized by having the head, thorax, and entire abdomen with bright metallic coloration, and the pronotum simple as in the *alienus* group.

This group includes the species placed in *Oxycleptes*, *Melanocleptes*, and *Chrysocleptes* by Móczár (1962). Móczár based *Melanocleptes* on *purpuratus*. However, his description of this species more closely fits that of *alienus*, with a partially black abdomen. *Oxycleptes* is based on a single species, which although coarsely punctate closely resembles *purpuratus* and others placed in the *orientalis* group.

There is some question about the identity of *viridis*. Gravenhorst (1807) stated that it is all green, so we have placed it in the *orientalis* group. However, the type appears to be lost. No author after Gravenhorst has discussed this species, thus its identity is unknown.

Members of the *orientalis* group are strikingly coloured. Most have the head, thorax, and abdomen concolorous blue to purple. However, a few, like *orientalis* females, have

the thorax quite different in colour from the head and abdomen. Members of this group are Palearctic and Oriental, with one species, *purpuratus*, in North America.

### *Cleptes satoi* group

These are all darkly coloured forms, with an all black, non-metallic abdomen. In addition, the pronotum has a transverse groove and/or a row of pits along the posterior margin. This group is comprised of Japanese species.

### *Cleptes schmidtii* group

Members of this group are entirely metallic, including the basal abdominal segments. However, unlike the *orientalis* group, the pronotum is depressed posteromedially with one or more pits (Fig. 12*b*). Included in this group is *fritzi*, the subgenerotype of *Neocleptes* from Argentina.

### *Cleptes semiauratus* group

The *semiauratus* group includes all of the species placed in *Cleptes* s. s. by Móczár (1962) as well as a number of North American and Asian forms. It is characterized by the structure of the pronotum (Fig. 12*c*) and the abdominal colour. The pronotum has a distinct transverse depression, groove, and/or a series of large pits along the posterior margin. The abdomen has the basal segments reddish, yellowish brown, or chestnut coloured, often with some metallic coloration laterally, and the apical segments are dark, often black, or metallic.

### *Cleptes townesi* group

This group is based on the single species *townesi*. It is characterized by having the thorax, legs, and abdomen non-metallic black, and the pronotum simple without posterior or mid- line pits or grooves. It occurs in Taiwan.

## Checklist of *Cleptes*

---

*aerosus* Förster. Palearctic: Hungary, Greece, Switzerland.

*aerosus* Förster 1853:329 (*abeillei* var.). Lectotype male (desig. Móczár 1962); Hungary (BUDAPEST). (*aerosus* group).\*

*aerosus* Tournier 1879:88. Holotype male; Hungary (BERLIN). Nec Förster 1853.

*abeillei* Buysson 1887a:6. Lectotype male (desig. Kimsey 1986c); 'Allier, le Poirier' (PARIS).\*

*soror* Mocsáry 1893:213 (*abeillei* var.). Holotype female; Greece (BUDAPEST).\*

*franciscaae* Linsenmaier 1987:133 (*aerosus* ssp.). Holotype female; Morocco: Mogador (LUZERN).

*afer* Lucas. Palearctic: Spain, North Africa, Middle East.

*afer* Lucas 1849:315. Lectotype female (desig. Kimsey 1986c); Algeria: Oran (PARIS). (*nitidulus* group).\*



- perezii* Gogorza 1887:30. Holotype male; Spain (MADRID).
- medina* Buysson (in André) 1891:79 (*afer* var.). Holotype female; Spain: Sierra-Morena (PARIS). N. synonymy.\*
- alienus* Patton. Nearctic: USA (widespread), s Canada.
- alienus* Patton 1879:66. Holotype female; USA: Wyoming (lost?). (*alienus* group).
- americanus* Provancher 1881:304. Holotype female; Canada: Quebec; (lost ?, invalid male type, QUEBEC; invalid female lectotype desig. Móczár 1962, BUDAPEST). Nec Cresson 1879.
- provancheri* Aaron 1885:212. Repl. name for *americana* Provancher 1881.
- anceyi* Buysson. Palaearctic: Algeria.
- anceyi* Buysson (in André) 1891:74. Lectotype male (desig. Kimsey 1986c); Algeria: Tlemcen (PARIS). (*nitidulus* group).\*
- antakyensis* Linsenmaier. Palaearctic: Turkey.
- antakyensis* Linsenmaier 1968:7. Holotype female; Turkey: Antakya (LUZERN). (*nitidulus* group).
- asianus* Kimsey. Oriental: Taiwan.
- asianus* Kimsey 1987a:56. Holotype female; Taiwan: Wushe (GAINESVILLE-AEI). (*orientalis* group).\*
- assamensis* Kurian. Palaearctic: India.
- assamensis* Kurian 1955:87. Holotype female; India: Assam (Coll. dehra dun ?).
- blaisdelli* Bridwell. Nearctic: w USA (California), nw Mexico.
- blaisdelli* Bridwell 1919:37. Holotype male; USA: California, Poway (WASHINGTON). (*nitidulus* group).\*
- canadensis* Kimsey. Nearctic: central Canada.
- canadensis* Kimsey 1987a:56. Holotype male; Canada: Saskatchewan (OTTAWA). (*nitidulus* group).\*
- caucasicus* Semenov. Palaearctic: sw USSR.
- caucasicus* Semenov 1920:322. Syntype male, female; Georgian SSR: Tblisi, Kodzhory (LENINGRAD). (*nitidulus* group).\*
- cavernalis* Móczár. Palaearctic: Greece.
- cavernalis* Móczár 1968a:167. Holotype male; Greece: Crete, Heraclium (LINZ). (*semiauratus* group).
- collaris* Linsenmaier. Palaearctic: Turkey.
- collaris* Linsenmaier 1959a:9. Holotype male; Turkey: Taurus, Ciftehan (LUZERN). (*aerosus* group).
- consimilis* Buysson. Palaearctic: Europe, North Africa, Turkey, Russia.

- consimilis* Buysson 1887b:198. Holotype male; France (PARIS). (*nitidulus* group).\*
- ignitus* Chevrier 1862:123. Nec Fabricius 1787.
- chevieri* Frey-Gessner 1887:28 (*ignitus* var.) Type ?; Switzerland (GENEVA ?).
- chryzeri* Mocsáry 1889:50. Lectotype female (desig. Móczár 1962); Hungary: Szolloske (BUDAPEST).\*
- crassiceps* Tsuneki. Palaearctic: Japan.
- crassiceps* Tsuneki 1959:21. Holotype female; Japan: Towada (TSUKUBA). (*satoi* group).
- doii* Tsuneki. Palaearctic: Korea.
- doii* Tsuneki 1959:7. Holotype female; Korea: Nanzan, Keijo (Seoul) (TSUKUBA). (*nitidulus* group).
- elegans* Mocsáry. Palaearctic: Hungary, s and w USSR, Turkey.
- elegans* Mocsáry (In Mocsáry and Szépligeti) 1901:158 (*semicyaneus* var.). Lectotype female (desig. Móczár 1962); USSR: 'Kasan' (BUDAPEST). (*nitidulus* group).\*
- flammifer* Semenov. Palaearctic ?
- flammifer* Semenov 1892c:498. Holotype female; locality unknown (LENINGRAD). (*semi-auratus* group).\*
- fritzi* Kimsey. Neotropical: central Argentina.
- fritzi* Kimsey 1981:816. Holotype male; Argentina: Entre Rios, Palmar Colón (SALTA). (*schmidtii* group).\*
- fudzi* Tsuneki. Palaearctic: Japan.
- fudzi* Tsuneki 1959:14. Holotype female; Japan: Youga-Cho (TSUKUBA).
- galloisi* Uchida. Palaearctic: Japan.
- galloisi* Uchida 1926:183. Holotype female; Japan (Mus. ?). (*orientalis* group).
- hyalinae* Kuznetzov-Ugamskii. Palaearctic: e USSR.
- hyalinae* Kuznetzov-Ugamskii 1927:28. Holotype male; USSR: 'Prov. Maritima Littoralis', Tirovaja (Mus. ?). (*semiauratus* group).
- hyrcanus* Semenov. Palaearctic: Iran.
- hyrcanus* Semenov 1920:322. Holotype male; Iran: Astrabad (LENINGRAD). (*nitidulus* group).
- ignitus* (Fabricius). Palaearctic: Europe, s USSR, Armenia, North Africa.
- ignitus* (Fabricius) 1787:269 (*Ichneumon*). Holotype female; 'Barbaria' (COPENHAGEN).
- chrysis* (Fabricius) 1787:269 (*Ichneumon*). Holotype male; 'Barbaria' (COPENHAGEN).
- insidiosus* Buysson. Palaearctic: sw USSR.
- insidiosus* Buysson (in André) 1891:85. Holotype female; Russian SFSR: Caucasus: Novo, Novorossisk (PARIS). (*nitidulus* group).\*

*japonicus* Tosawa. Palaearctic: Japan.

*japonicus* Tosawa 1940:3. Syntype males, females; Japan: Honshu Isl., Nagano (TSUKUBA). (*semiauratus* group).

*jordanicus* Linsenmaier. Palaearctic: Jordan, Turkey.

*jordanicus* Linsenmaier 1968:4. Holotype male; Jordan (LUZERN). (*semiauratus* group).

*kusdasicus* Móczár. Palaearctic: Turkey.

*kusdasicus* Móczár 1968b:368. Holotype female; Turkey: Mut (LINZ). (*nitidulus* group).

*libanoticus* Linsenmaier. Palaearctic: Lebanon.

*libanoticus* Linsenmaier 1959a:9. Holotype male; Lebanon: Mt. Barouk (LUZERN). (*aerosus* group).

*maculatus* Linsenmaier. Palaearctic: Cyprus.

*maculatus* Linsenmaier 1968:6. Holotype female; Cyprus: Pyrgos (LUZERN). (*semiauratus* group).

*mandsuricus* Móczár. Palaearctic: ne China (Manchuria).

*mandsuricus* Móczár 1968a:171. Holotype male; China: Manchuria, Erzendjanzsy (VIENNA). (*aerosus* group).

*mayeti* Buysson. Palaearctic: Algeria.

*mayeti* Buysson (in André) 1891:81. Holotype female; Algeria: Ponteba (Peres Coll.). (*nitidulus* group).

*mishimaensis* Tsuneki. Palaearctic: Japan.

*mishimaensis* Tsuneki 1986:2. Holotype female; Japan: Shizouka Pref., Mishima (TSUKUBA). (*satoi* group).

*mocsarii* Semenov. Palaearctic: Hungary, Greece, Turkey.

*mocsarii* Semenov 1892c:502. Holotype female; Hungary: Erber (LENINGRAD). (*semiauratus* group).\*

*moczari* Linsenmaier. Palaearctic: Greece.

*moczari* Linsenmaier 1968:4. Holotype female; Greece: 'Alt- Korinth' (LUZERN). (*semiauratus* group).

*morawitzi* Radovszkowski. Palaearctic: s USSR.

*morawitzi* Radovszkowski 1877:1. Syntype male, female; Uzbek SSR: Maracandam, Tashkent, Tschardara (MOSCOW). (*nitidulus* group).

*maroccanus* Linsenmaier. Palaearctic: Morocco

*maroccanus* Linsenmaier 1987:134. Holotype female; Morocco: Mt. Atlas (LUZERN)

*muti* Móczár. Palaearctic: Turkey.

*muti* Móczár 1968b:369. Holotype male; Turkey: Mut (LINZ). (*nitidulus* group).

*nigritus* Mercet. Palaearctic: s Europe.

*nigritus* Mercet 1904a:83. Holotype male; Spain: Sierra Gallina, Cadiz Prov. (MADRID). (*semiauratus* group).

*nitidulus* (Fabricius). Palaearctic: Europe, Turkey, Manchuria.

*nitidulus* (Fabricius) 1793:184 (*Ichneumon*). Holotype female; Italy (PARIS ?). (*nitidulus* group).

*thoracius* Laporte (fig. in Guérin) 1835:pl. 68. Holotype female; locality ? (Mus. ?).

*fallax* Mocsáry 1889:49. Lectotype male (desig. Móczár 1962); Hungary: Budapest (BUDAPEST).\*

*femoralis* Mocsáry 1890:47. Holotype male; Turkey: Brussa (BUDAPEST).\*

*erdosi* Móczár 1951:278 (*nitidulus* var.). Holotype female; Hungary: Fajsz (BUDAPEST).\*

*obsoletus* Semenov. Palaearctic: sw USSR.

*obsoletus* Semenov 1892c:500. Holotype female; Russian SFSR: Sarepta (LENINGRAD). (*nitidulus* group).\*

*orientalis* Dahlbom. Palaearctic: s Europe, Turkey.

*orientalis* Dahlbom 1854:20. Holotype female; Turkey (COPENHAGEN). (*orientalis* group).

*pallipes* Lepeletier. Palaearctic: se Europe, s and sw USSR.

*pallipes* Lepeletier 1806:119. Lectotype female (desig. Morgan 1984); France: Paris (PARIS). (*semiauratus* group).\*

*diana* Mocsáry 1889:46. Holotype male; Greece: Morea Penin., Cumani (BUDAPEST).\*

*parnassicus* Mocsáry. Palaearctic: Greece.

*parnassicus* Mocsáry 1902a:339. Lectotype female (desig. Kimsey herein); Greece: Mt. Parnassus (BUDAPEST). (*semiauratus* group).\*

*pronigrus* Linsenmaier. Palaearctic: Turkey.

*pronigrus* Linsenmaier 1968:6. Holotype female; Turkey: Antakya (LUZERN). (*semiauratus* group).

*pseudosulcatus* Móczár. Palaearctic: Spain.

*pseudosulcatus* Móczár 1968a:169. Holotype female; Spain: Cuence (MUNICH). (*semiauratus* group).

*purpuratus* Cresson. Nearctic: w USA.

*purpuratus* Cresson 1879:x. Holotype female; Canada: British Columbia, Vancouver (PHILADELPHIA). (*orientalis* group).\*

*americanus* Cresson 1879:x. Holotype female; USA: Nevada (PHILADELPHIA).\*

*insperatus* Aaron 1885:212. Holotype female; USA: Montana (PHILADELPHIA).\*

*putoni* Buysson. Palaearctic: s Europe, Turkey.

*putoni* Buysson 1886:151. Holotype female; France: Sisteron (PARIS ?). (*orientalis* group).

*buyssoni* Semenov 1892b:501. Holotype male; Yugoslavia: Montenegro (LENINGRAD).



*radoszkowskii* Radoszkowski. Palaearctic: sw USSR.

*radoszkowskii* Radoszkowski 1889:7. Syntype male, female; USSR: 'Caucasus' (KRAKOW ?). (*semiauratus* group).

*rufifemur* Kimsey. Nearctic: w USA (California).

*rufifemur* Kimsey 1981:814. Holotype male; USA: California, Yolo Co., Davis (DAVIS). (*semiauratus* group).\*

*rufigaster* Kimsey. Nearctic: w USA (California).

*rufigaster* Kimsey 1981:814. Holotype male; USA: California: Placer Co., Rocklin (DAVIS). (*semiauratus* group).\*

*rugulosus* Linsenmaier. Palaearctic: Israel.

*rugulosus* Linsenmaier 1968:8. Holotype female; 'Palestine' (LUZERN). (*nitidulus* group).

*satoi* Tosawa. Palaearctic: Japan.

*satoi* Tosawa 1940:5. Syntype males, females; Japan: Osaka, Nara (OSAKA). (*satoi* group).

*saussurei* Mocsáry. Palaearctic: sw USSR, Hungary.

*saussurei* Mocsáry 1889:57. Holotype female; Russian SFSR: Sarepta (GENEVA). (*orientalis* group).

*schmidtii* Linsenmaier. Palaearctic: Greece.

*schmidtii* Linsenmaier 1968:8. Holotype female; Greece: 'Alt Korinth' (LUZERN).

*scutellaris* Mocsáry. Palaearctic: s Europe.

*scutellaris* Mocsáry 1889:53 (*ignitus* var.). Lectotype female (desig. Móczár 1962); Hungary: Nyitra (BUDAPEST).

*guruensis* Linsenmaier 1987:134 (*scutellaris* ssp.). Holotype female; Turkey: Gurun (LUZERN).

*seidensteuckeri* Linsenmaier. Palaearctic: Turkey.

*seidensteuckeri* Linsenmaier 1959a:10. Holotype female; Turkey: Akschehir (LUZERN). (*semiauratus* group).

*semenovi* Kuznetsov-Ugamskii. Palaearctic: s USSR.

*semenovi* Kuznetsov-Ugamskii 1927:28. Syntype females; Uzbek SSR: Tashkent, Mt. Kengrak (Mus. ?). (*orientalis* group).

*semiatus* Linsenmaier. Palaearctic: Middle East.

*semiatus* Linsenmaier 1968:7. Holotype female; 'Palestine' (LUZERN). (*nitidulus* group).

*semiauratus* (Linnaeus). Palaearctic: widespread, Nearctic: e USA (scattered introductions).

*semiauratus* (Linnaeus) 1761:413 (*Sphex*). Lectotype female (desig. Kimsey herein); Paris (PARIS). (*semiauratus* group).\*

*rufescens* (Geoffroy) 1785:441 (*Vespa*). Holotype female; France: Paris (Mus. ?).  
*splendidus* (Fabricius) 1794:457 (*Ichneumon*). Holotype male; Italy (COPENHAGEN).  
*splendens* (Fabricius) 1798:229 (*Ichneumon*). Invalid emendation of *splendidus* Fabricius 1794.  
*auratus* (Panzer) 1798, Heft 52, no.26 (*Ichneumon*). Holotype female; (Mus. ?).  
*auratus* Dahlbom 1845:2. Holotype male; Turkey: Bosfor (STOCKHOLM). Nec Panzer 1798.  
*dahlbomi* Semenov 1920:306. Repl. name for *auratus* Dahlbom 1845.

*semicyaneus* Tournier. Palaearctic: se Europe, s USSR.

*semicyaneus* Tournier 1879:88. Holotype male; Russian SFSR: Sarepta (GENEVA). (*nitidulus* group).

*seoulensis* Tsuneki. Palaearctic: Korea.

*seoulensis* Tsuneki 1959:13. Holotype female; Korea: Keijo (TSUKUBA). (*orientalis* group).

*sjostedti* Hammer. Palaearctic: China.

*sjostedti* Hammer 1950:2. Holotype female; China: Kiangsu (STOCKHOLM). (*orientalis* group).

*speciosus* Aaron. Nearctic: n USA, s Canada, widespread.

*speciosus* Aaron 1885:212. Holotype female; USA: Montana (PHILADELPHIA). (*alienus* group).\*

*syriacus* Buysson. Palaearctic: Middle East.

*syriacus* Buysson 1887a:8. Holotype male; Syria: Nazareth (PARIS). (*nitidulus* group).\*

*thaiensis* Tsuneki. Oriental: Thailand.

*thaiensis* Tsuneki 1961:367. Holotype male; Thailand: Doi Suthep (OSAKA). (*orientalis* group).

*townesi* Kimsey. Oriental: Taiwan.

*townesi* Kimsey 1987a:58. Holotype male; Taiwan: Wushe (GAINESVILLE-AEI). (*townesi* group).\*

*turceyanus* Linsenmaier. Palaearctic: Turkey.

*turceyanus* Linsenmaier 1968:5. Holotype male; Turkey: Tarsus (LUZERN). (*semiauratus* group).

*venustus* Tsuneki. Palaearctic: Japan.

*venustus* Tsuneki 1966:19. Holotype male; Japan: Aomori Pref., Hachinohoe City, Shirahama (OSAKA). (*satoi* group).

*viridis* Gravenhorst.

*viridis* Gravenhorst 1807:270. Unknown species. (*orientalis* group).

---

*Cleptidea* Mocsáry (Figs 13 and 14)

*Cleptidea* Mocsáry 1904b:567. Type: *Cleptes aurora* Smith 1874b:452. Orig. desig.

*Godfrinia* Kieffer 1911:206. Type: *Godfrinia viridiceps* Kieffer 1911:206. Orig. desig.

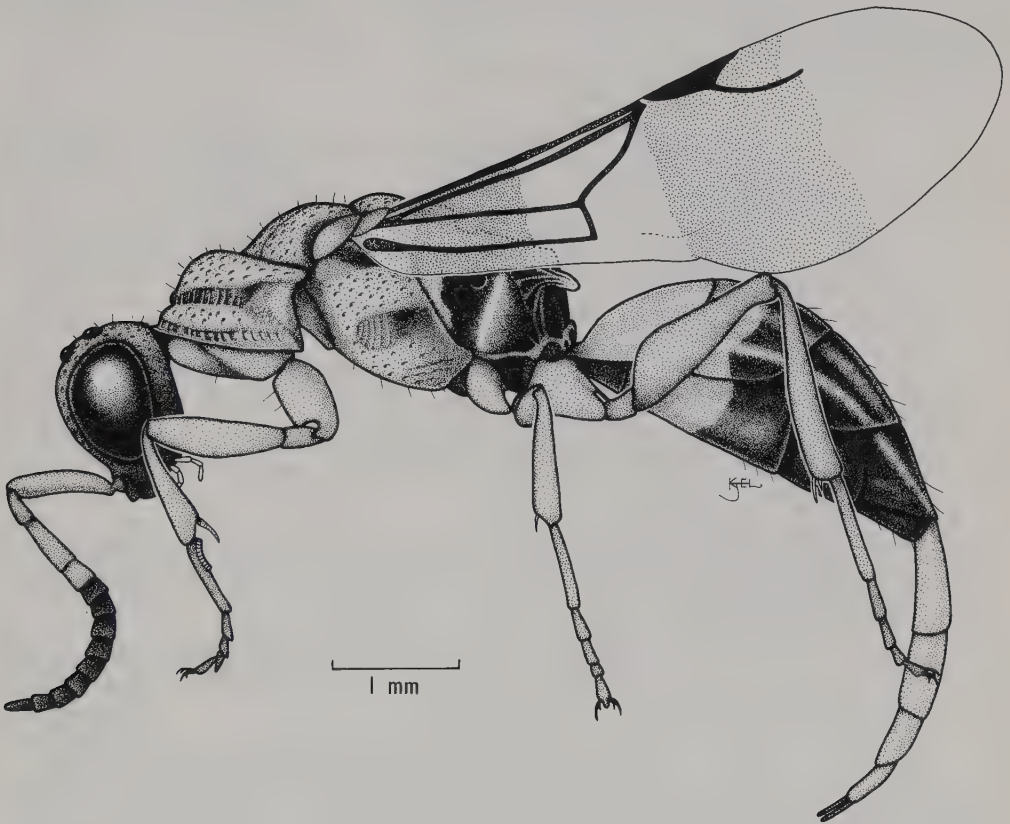


Fig. 13. *Cleptidea fasciata*, female.

### Generic diagnosis

Head (Fig. 14a) wider than long; midocellus wider than antennal socket; malar space equal to diameter of antennal socket or shorter; mandibles subtriangular, broad basally, tapering apically, with two or three small apical teeth; pronotum with deep, generally foveate transverse anterior groove delimiting collar and transverse submedial groove, clearly defined transverse subapical groove and/or pit row, and deep groove along mid-line (Fig. 14f); mesopleuron with deep scrobe, without scrobal sulcus, and without omaulus (except in *nigrocincta*) (Fig. 13); metanotal development variable,

ranging from weakly convex (*scutellaris*) to strongly projecting and acute (*aurora*, *magnifica*) (Fig. 14*b*); propodeal teeth sharp and acute (except *scutellaris*); tarsal claws with single, large, subparallel subsidiary tooth (Fig. 14*c*); fore wing with only faint stained traces of discoidal cell, or more commonly cell completely absent (Fig. 13); male genitalia (Fig. 14*d*, *e*); body coloured with black, orange, purple, blue, and/or white; gaster with two basal segments marked with white or orange, remaining segments blackish (gaster entirely black in *scutellaris*); fore wing with one or more dark bands (absent in *scutellaris*).

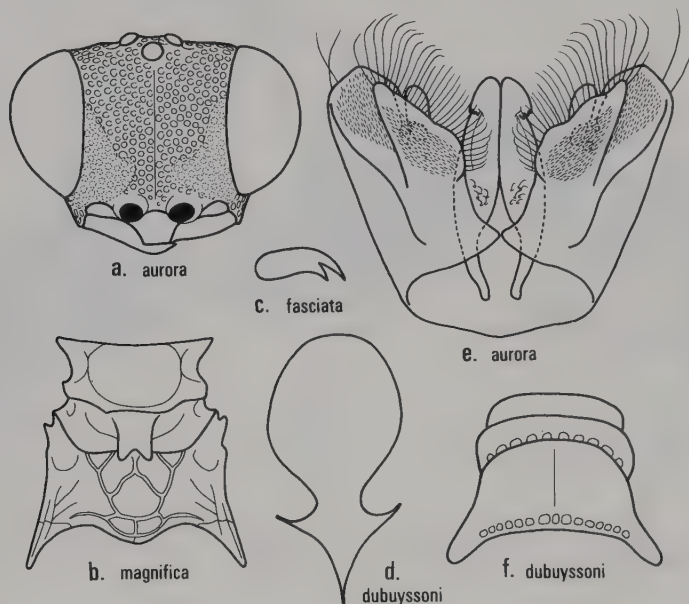


Fig. 14. *Cleptidea*, male. (a) face; (b) dorsal view of scutellum, metanotum, and propodeum; (c) hind tarsal claw; (d) S-VIII; (e) genital capsule, ventral; and (f) pronotum, dorsal.

## Hosts

Unknown, although *panamensis* has been observed flying around shrubs heavily infested by the tenthredinid *Erythraspides interstitialis* (Cameron).

## Distribution

This genus occurs in the Neotropical Region, from Guerrero, Mexico, south to northern Argentina.

## Discussion

*Cleptidea* are rare in collections. However, as in *Cleptes*, they may be locally abundant,



apparently due to outbreaks of their host species.

This genus was most recently revised by Kimsey (1981, 1986b), who divided *Cleptidea* into six species groups. These groups are based on coloration, the shape of the metanotal projection, and sculpturing of the pronotum. Unfortunately, this is a structurally conservative group, and as a result it is necessary to rely heavily on coloration to distinguish species and demonstrate species groupings.

## KEY TO THE CLEPTIDEA SPECIES GROUPS

- 
- |  |                                |
|--|--------------------------------|
| 1. Body entirely blackish, wings unbanded and evenly stained   |                                |
|  | <i>scutellaris</i> group, p.68 |
| Body multicoloured with various combinations of red, yellow, whitish, black, blue, and purple; wings with 1 or 2 brown bands | 2                              |
- 
- |  |   |
|--|---|
| 2. Face with large, subtriangular whitish spots along ocular margins | 3 |
| Face entirely concolorous, without whitish markings                  | 4 |
- 
- |   |                                |
|---|--------------------------------|
| 3. Mesothorax entirely blue, except scutellum red in <i>aurora</i> ; metanotal projection as high or higher than long in profile, apically truncate or emarginate |                                |
|   | <i>aurora</i> group, p.67      |
| Mesothorax entirely red or with some blue on mesopleuron; metanotal projection much longer than high in profile and broadly rounded apically                      |                                |
|   | <i>mutilloides</i> group, p.68 |
- 
- |   |                         |
|---|-------------------------|
| 4. Legs and coxae blue, except coxae with small reddish basodorsal spot at least in females | <i>mima</i> group, p.68 |
| Legs and coxae red, brown, orange, or yellow, without any blue                              | 5                       |
- 
- |  |                                |
|--|--------------------------------|
| 5. Head entirely black, with at most faint purplish tints; legs yellow; individuals large, usually 6–8 mm long | <i>fasciata</i> group, p.68    |
| Head green, blue, or purple, and/or legs brown; individuals small, usually 4–6 mm long                         | <i>nigrocincta</i> group, p.68 |
- 

### *Cleptidea aurora* group

These are the most highly modified species of *Cleptidea*. They are characterized by having large white, subtriangular spots on the face along the ocular margins and often having white on the gena, mandibles, and antennae as well. The metanotal projection is as high, or higher, than it is long in profile, and apically truncate or emarginate. The mesothorax is either entirely blue, or only the scutellum is red. The body colour is red, blue, black, or purple, and white. Members of the group are South American,

and they are most closely related to the *mutilloides* group.

### *Cleptidea fasciata* group

Members of the *fasciata* group are orange and black, lacking blue or whitish markings. They are characterized by the all black head, large size, yellow legs, and black gastral segments III–IV (and V in males). These species occur in Brazil and northern Argentina. They are most closely related to members of the *nigrocincta* group.

### *Cleptidea mima* group

The *mima* group is similar to the *aurora* and *mutilloides* groups, based on the blue/black, red, and white coloration, particularly on the abdomen. However, they do not have white markings on the face, the coxae have a red dorsobasal spot, and the metanotal projection is low and broadly rounded. Members of the *mima* group are recorded from Peru and Ecuador.

### *Cleptidea mutilloides* group

Most closely related to the *aurora* group, based on the extensive blue/black coloration on the body and the white markings on the face, the *mutilloides* group can be distinguished by the entirely or partly red mesopleuron, and low, broadly rounded metanotum. Members of this group occur from Panama to northern Argentina.

### *Cleptidea nigrocincta* group

The *nigrocincta* group is most closely related to the *fasciata* group since both have blue or purple coloration and whitish markings only on the gaster, if at all. Members of the *nigrocincta* group can be distinguished from those of the *fasciata* group by their small size and pronotum either with only a few large pits along the posterior margin or without pits. The scape, pedicel, and sometimes F–I are red. These are all Central American species, occurring from tropical Mexico to Panama.

### *Cleptidea scutellaris* group

This monotypic group is characterized by the entirely black body, absence of wing bands, only slightly convex metanotum, and the pronotum without a groove along the mid-line. *Cleptidea scutellaris* is the most primitive species of *Cleptidea*, lacking most of the specializations found in this genus, including the bright coloration and modified pronotum, metanotum, and propodeum. However, it does have the basic generic characteristics—the form of the tooth on the tarsal claw and the facial dimensions. *Cleptidea scutellaris* occurs in central Mexico.

## Checklist of *Cleptidea*

---

*aurora* (Smith). Neotropical: n South America.

*aurora* (Smith) 1874b:452 (*Cleptes*). Lectotype female (desig. Kimsey 1986c); Brazil: Teffe

('Ega') (LONDON). (*aurora* group).\*

*robustior* (Ducke) 1905:30. (*Cleptes aurora* var.). Type ?; Brazil (SAO PAULO).

*balboana* Kimsey. Neotropical: Panama.

*balboana* Kimsey 1986b:316. Holotype female; Panama, Zona del Canal, near Balboa (DAVIS). (*nigrocincta* group).\*

*dubuyssoni* (Ducke). Neotropical: Brazil, Surinam.

*buyssoni* (Ducke) 1905:29. (*Cleptes aurora* var.). Holotype male; Brazil: 'Oyapook' (PARIS). Nec Semenov 1892b.

*dubuyssoni* (Ducke) 1905:100. (*Cleptes aurora* var.). Repl. name for *buyssoni* Ducke 1905. (*aurora* group).

*fasciata* (Dalman). Neotropical: Brazil.

*fasciata* (Dalman) 1823:90. (*Cleptes*). Holotype female; 'Brasilia' (STOCKHOLM). (*fasciata* group).\*

*janzeni* Kimsey. Neotropical: Costa Rica.

*janzeni* Kimsey 1986b:317. Holotype male; Costa Rica: Guanacaste, Santa Rosa Park (GAINESVILLE-AEI). (*nigrocincta* group).\*

*magnifica* (Ducke). Neotropical: n Brazil.

*magnifica* (Ducke) 1905:99. (*Cleptes*). Holotype male; Brazil: 'Oyapook' (PARIS). (*aurora* group).\*

*mima* Kimsey. Neotropical: Peru.

*mima* Kimsey 1986b:318. Holotype female; Peru: Huanuco Prov., Tambello Chico, 13 km e Tingo Maria (DAVIS). (*mima* group).\*

*mutilloides* (Ducke). Neotropical: Brazil, n Argentina.

*mutilloides* (Ducke) 1902a:91. (*Cleptes*). Lectotype male (desig. Kimsey 1986c); Brazil: Pará (PARIS). (*mutilloides* group).\*

*minor* (Ducke) 1913:12. (*Cleptes mutilloides* var.). Type ?; Brazil (SAO PAULO ?).

*napoana* Kimsey. Neotropical: Ecuador.

*napoana* Kimsey 1986b:318. Holotype male; Ecuador: Napo, Limoncocha (OTTAWA). (*mima* group).\*

*neotropica* (Brues). Neotropical: Guyana.

*neotropica* (Brues) 1914:119. (*Mesitius*). Holotype male; Guyana: Bartica (CAMBRIDGE). (*aurora* group).\*

*nigrocincta* (Kieffer). Neotropical: s Mexico.

*nigrocincta* (Kieffer) 1911:207. (*Godfrinia*). Holotype male; Mexico: Tabasco, Teapa (LONDON). (*nigrocincta* group).\*

*panamensis* Kimsey. Neotropical: Panama.

*panamensis* Kimsey 1986b:319. Holotype male; Panama: Canal Zone, Barro Colorado Is. (DAVIS). (*mutilloides* group).\*

*pedicelaris* Kimsey. Neotropical: Colombia.

*pedicelaris* Kimsey 1986b:320. Holotype male; Colombia: Anchicaya Dam, 17 km e Buenaventura (OTTAWA). (*mutilloides* group).\*

*propodealis* Kimsey. Neotropical: Brazil.

*propodealis* Kimsey 1986b:322. Holotype female; Brazil: Santa Catarina, Nova Teutonia (DAVIS). (*fasciata* group).\*

*scutellaris* (Cameron). Neotropical: s Mexico.

*scutellaris* (Cameron) 1897b:275. (*Epyris*). Holotype male; Mexico: Guerrero, Sierra Colorado (LONDON). (*scutellaris* group).\*

*viridiceps* (Kieffer). Neotropical: s Mexico.

*viridiceps* (Kieffer) 1911:206. (*Godfrinia*). Holotype female; Mexico: Guerrero, Chilpancingo (LONDON). (*nigrocincta* group).\*

*xantha* Kimsey. Neotropical: Brazil.

*xantha* Kimsey 1986b:323. Holotype female; Brazil: Santa Catarina, Nova Teutonia (DAVIS). (*fasciata* group).\*

*xanthomelas* (Mocsáry). Neotropical: Brazil.

*xanthomelas* (Mocsáry) 1889:36. (*Cleptes*). Lectotype female (desig. Kimsey 1986c); Brazil: Blumenau (BUDAPEST). (*fasciata* group).\*

---



---

## 9 SUBFAMILY AMISEGINAE

---

The Amiseginae are small cryptic wasps, found low in vegetation or in leaf litter. They can be recognized by the five external abdominal segments in males and four in females, as well as the flat or concave face, slender mandibles, and needle-like ovipositor.

These wasps are infrequently collected but this is more a reflection of collecting techniques than of actual abundance. The highest species diversity occurs between latitudes 30° north and 30° south. Amisegines are parasites of phasmatid walking stick eggs.

### DIAGNOSTIC CHARACTERISTICS

1. Face flat to concave, with distinct scapal basin area.
2. Clypeus short, linear, and usually somewhat projecting or otherwise modified.
3. Mandibles slender with two small apical teeth, except in some males with broad foliaceous mandibles.
4. Tongue short, lying flat in oral fossa; maxillary palpus five-segmented; labial palpus three-segmented.
5. Occipital carina complete, partial, or absent.
6. Malar space often with vertical sulcus.
7. Flagellum often sexually dimorphic, elongate and cylindrical in males, and short and broad in females.
8. Pronotum subquadrate, usually with medial groove and pit before lateral lobe.
9. Prosternum short and largely covered by propleura which meet for most of their length.
10. Scutum with or without notauli and parapsides.
11. Tegula unmodified.
12. Mesopleuron usually with scrobal pit, and often with scrobal sulcus, subalar fossa, and omaulus.
13. Metanotum usually evenly convex with triangular medial enclosure or with elevated medial disk; usually parallel-sided but occasionally very long or even dentate medially.

14. Propodeum generally box-like with long dorsal surface, unless dorsally covered by metanotum; lateral angles present or absent.
15. Tarsal claws with single subsidiary tooth, or edentate.
16. Some females and fewer males brachypterous or apterous.
17. Fore wing with closed costal, medial, and submedial cells; R1 often indicated.
18. Hind wing with remnant of costa, Sc, and R1.
19. Abdomen with five external segments in males and four in females, with spiracle on II-V located on, or slightly above, lateral fold; venter strongly convex.
20. Female ovipositor slender and needle-like.
21. Volsella with slender digitus and cuspis, attached basally.
22. Body largely non-metallic and sexual dimorphism common.

## SYSTEMATICS

This is a large and diverse subfamily comprising approximately 30 genera. New collecting techniques, particularly pit-fall traps and specialized malaise traps have revealed an unexpected diversity of amisegines in tropical latitudes. This diversity is particularly high in the Indoaustralian Region.

It is safe to assume that our knowledge of the amisegine fauna is quite incomplete. Superficially the amisegines appear to have been divided into more genera than necessary and a number of these are known from only one sex. However, after studying this group rather intensively we have come to the conclusion that there are a greater proportion of taxa (genera and species) remaining to be described than in any of the other chrysidid subfamilies. The existing taxa are for the most part clearly defined although they may become less distinct when more individuals and species are collected and studied. Whenever someone collects intensively in a new locality using pit-fall and malaise traps we see new taxa. The best example of this was a large amount of material collected by P. Becker and M. Wong in the Pasoh Forest Reserve in Malaysia. Out of some 200 specimens all were new species and there were also three new genera.

Needless to say, demonstrating generic affinities in the Amiseginae is difficult because the fauna is so incompletely known. As a result the phylogenetic discussion below is, at best, preliminary.

In our analysis of the subfamily we have found the following derived character states useful to demonstrate phylogenetic relations. The derived condition is indicated by number on Fig. 15.

1. Malar sulcus. The presence of a malar sulcus is a feature unique to the Amiseginae. However, within this group its absence appears to be a specialization since it occurs

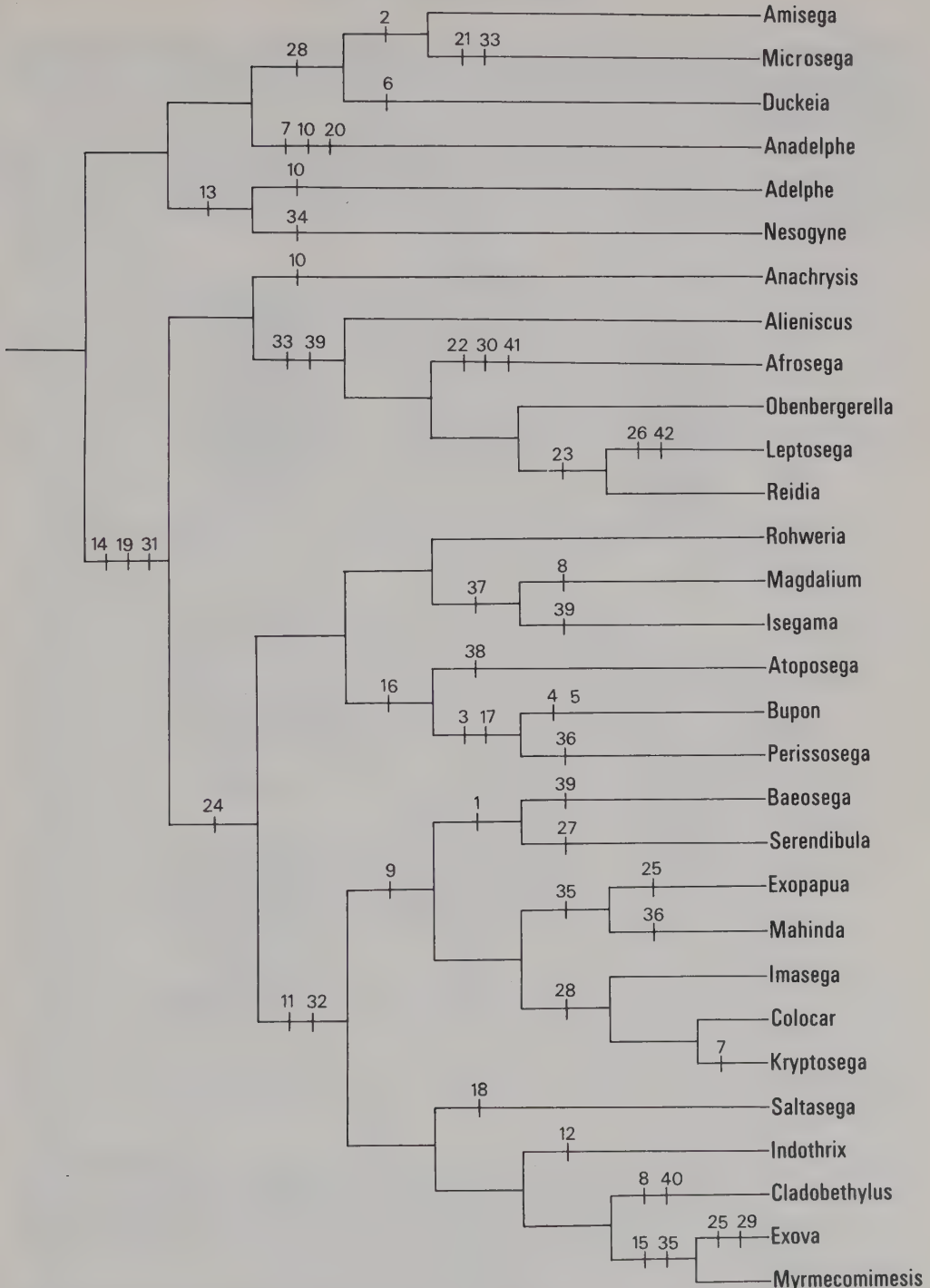


Fig. 15. Phylogenetic relationships of the genera of Amiseginae. Numbers correspond with those given for derived character states in the text.

only in females of genera with a preponderance of derived features, including *Baeosega* and *Serendibula*. A malar sulcus is present in all of the least specialized genera, such as *Adelphe* and *Anachrysis*.

2. Malar space. Most amisegines have a long malar space, at least one-quarter as long as the eye height. In *Amisega* (Fig. 16b) and *Microsega* the malar space is less than one-sixth the eye height.

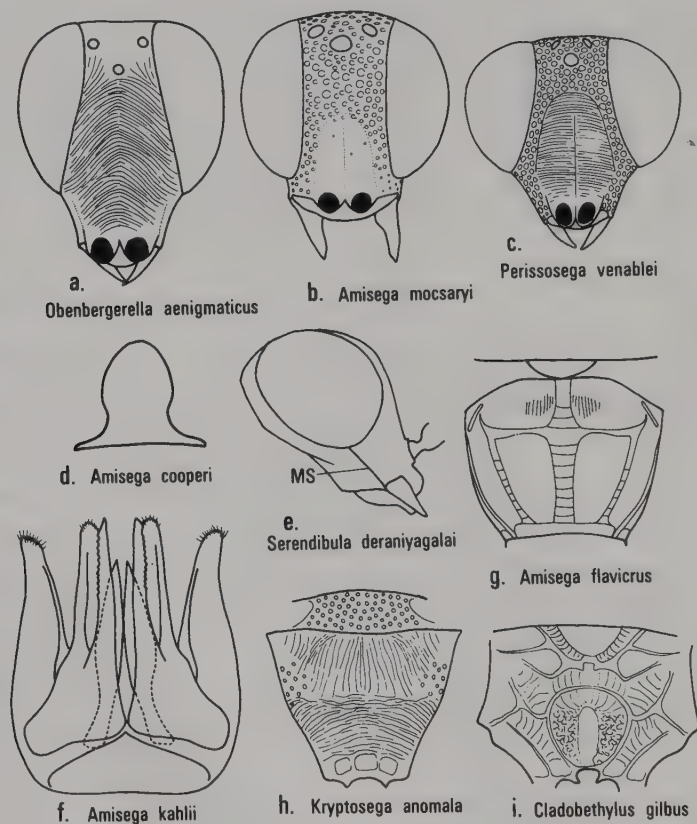


Fig. 16. Amiseginae. (a)–(c) face; (d) S-VIII; (e) head, lateral; (f) genital capsule, ventral; and (g)–(i) propodeum, posterior surface.

3–4. Frontal carina. A TFC is common only in Chrysidini, and is otherwise found rarely in Elampini and Amiseginae. In Amiseginae the presence of a TFC is derived, occurring in only *Perisseosega* (Fig. 16c) (3) and *Bupon*. In *Bupon* the TFC is further modified, projecting shelf-like (see Fig. 26) (4).

5–6. Head shape. The posterior head margin is evenly rounded in profile in the majority of amisegines. However, in *Bupon* and *Duckeia* it is angulate behind the eye.



In the case of *Bupon* the angulation is caused by a strongly projecting occipital carina (Fig. 26) (5). In *Duckeia* the gena itself is angulate (Fig. 29) (6).

7. Scapal basin sculpture. Amisegines typically have some form of cross-ridging and/or coarse punctation in the scapal basin. In a few instances the scapal basin and practically the entire face are smooth, without ridging or striae, and with few punctures. The absence of extensive sculpturing is a derived feature found in *Anadelphe* and *Kryptosega*.

8. Vertex welt. Two genera, *Cladobethylus* and *Magdalium*, have a broad polished welt extending from the mid ocellus posteriorly. These genera do not appear closely related based on other derived features, so we can only assume that this feature evolved independently in each.

9. Occipital carina. The majority of amisegine genera have a well-developed occipital carina, as do the Cleptinae. Therefore the absence of this carina is a derived feature, which occurs in *Imasega*, *Colocar*, and *Kryptosega*.

10. Male mandibles. An unusual feature of *Adelphe* (Fig. 18a, b), *Anadelphe*, and *Anachrysis* is the shape of the male mandible, which is broadly foliaceous, flat, and usually apically dentate.

11–12. Male flagellomeres. We are assuming that a lack of sexual dimorphism in the shape of the flagellum is the primitive state in this subfamily, as it is in the others. Two different derived conditions of the male flagellum occur in amisegines. First, the flagellum can be considerably elongate with flagellomeres three or more times as long as they are broad (11). Secondly, the flagellar articles may be lobulate below, as in *Indothrix* (Fig. 33) (12).

13. Pronotal carina. A derived feature characteristic of *Adelphe* (Fig. 17) and *Nesogyne* is the presence of a carina extending around the lateral and anterior margins of the pronotum. It is most strongly developed in *Adelphe*, and fainter but still discernible in *Nesogyne*. No other amisegines have any indication of a pronotal carina in this position.

14. Pronotal pits. A feature diagnostic of the subfamily is the presence of a small pit at the origin of the pronotal lobe and one posteromedially on the pronotal dorsum. We are treating the presence of these pits as a derived condition even though they occur in the majority of genera, because they are not found in the primitive American genera or in any of the fossil species.

15. Pronotal shape. The posterior pronotal margin is usually evenly rounded to the scutum. However, in *Myrmecomimesis* (Fig. 40) and *Exova* (Fig. 31) the pronotum is elevated and abruptly declivitous, or abruptly rounded posteriorly.

16–17. Mesopleural sculpture. A variety of derived conditions can be seen on the mesopleuron involving the absence of carinae and sulci. Based on examination of fossil amisegines and extant cleptines the primitive mesopleuron has an omaulus and scrobal

sulcus, which occur in *Adelphe* (Fig. 18) and *Robweria*, *Magdalius*, and *Isegama* (as in Fig. 45). The loss of a scrobal sulcus is one derivation (16), and the loss of the omaulus another (17). These two are linked only in that a scrobal sulcus is never found unless the omaulus is present, but not vice versa.

18. Scutellar shape. The scutellum is generally in a plane with the scutum and metanotum. However, in *Saltasega* the scutellum is elevated in profile (Fig. 46); a derived condition.

19–23. Metanotal length. Based on comparisons with Cleptinae and fossil amisegines the primitive form of the metanotum is typified by the majority of American genera, particularly *Adelphe* and *Amisega*. In these the metanotum is short, less than one-third the scutellar length. In the Old World genera the metanotum is subequal to the scutellar length, or at least two-thirds as long. We are treating this condition as derived (19). Evolved independently, the metanotum of *Anadelphe* is long but still has an elevated medial disk (20). In *Microsega* the metanotum is so reduced that it appears as a sulcus between the scutellum and the propodeum (Fig. 39) (21). The length of the metanotum may be hard to distinguish in a number of these genera, particularly in wingless forms because of varying degrees of fusion with the propodeum. In a further modification, in the flightless genus *Afrosega* the metanotum is short and the propodeum has no dorsal surface (22). Finally, in *Reidia* and *Leptosega* the dorsomedial juncture between the metanotum and propodeum is sharply angled (23).

24–25. Metanotal sculpture. Along with a short metanotum, the presence of an elevated medial metanotal disk (Fig. 16g) in American genera resembles the condition in *Cleptes* and is considered to be primitive. In Oriental and Australian genera the metanotum has a triangular medial enclosure (Fig. 16i) (24). *Exova* and *Exopapua* have secondarily lost the enclosure and the metanotum is evenly sculptured throughout (25).

26–27. Metanotal projections. The primitive metanotum is evenly rounded. In *Leptosega* it has two decumbent posterior teeth (26). Female *Serendibula* have a pair of lamellae on the anterior margin of the metanotum (27).

28–30. Propodeal shape. In Amiseginae the propodeum is primitively box-shaped with a relatively long dorsal surface, and lateral angles. In two different lineages, *Amisega* + *Microsega* + *Duckeia* (Fig. 21) and *Colocar* + *Imasega* + *Kryptosega* (Fig. 28), the propodeum lacks lateral angles (28). In *Exova* the propodeum has two dorsomedial teeth (Fig. 31) (29). In *Afrosega* the propodeum lacks a dorsal surface and is nearly vertical at the apex of the metanotum (Fig. 19) (30).

31–32. Propodeal sculpture. Based on examination of cleptines and fossil amisegines the most primitive sculpturing of the posterior face of the propodeum occurs in the American genera. In these the propodeum is bisected by a longitudinal carina which is paralleled by two sublateral carinae, and all three are crossed by a transverse medial carina, making four enclosures (Fig. 16g). The Old World genera have a horseshoe-

shaped enclosure bisected by a longitudinal carina (Fig. 16*i*) (31), or lack any distinct enclosure or carinae (Fig. 16*b*) (32).

33–35. Brachyptery. Brachyptery occurs throughout the Amiseginae. This derived condition is found in several distinct forms. In *Microsega* and the majority of African genera, both sexes are essentially wingless, the wings being reduced to small pads or absent (33). In *Nesogyne* the female, at least, is brachypterous, and the wings are about one-third normal size with veins (Fig. 41) (34). Finally, in many Oriental and Australian genera females are brachypterous, and the wings reduced to small pads, particularly in *Mahinda*, *Exopapua*, *Exova*, and *Myrmecomimesis* (35).

36–37. Fore wing venation. In the primitive condition Rs is evenly curved when extended to the wing margin, and the medial vein arises before cu-a. In *Mahinda* and *Perissosega* Rs is medially angulate (Fig. 43) (36) and in *Isegama* and *Magdaliu* M arises at cu-a (Fig. 37) (37).

38. Fore wing setation. Chrysidid wing membrane is generally sparsely setose, and the setae may even be absent in certain areas, as in the elampine genera related to *Omalus*. In *Atoposega* the wing membrane is densely setose, sometimes obscuring the venation.

39–40. Tarsal claw dentition. Only two conditions occur in amisegines, dentate and edentate tarsal claws. Genera with dentate tarsal claws have a single subperpendicular tooth, a primitive condition resembling that of Cleptinae. However, those with edentate tarsal claws occur in two forms. In the first, the claws of both sexes are edentate (39). In *Cladobethylus*, however, only the female claws are edentate (40).

41–42. Gaster petiolate. The gaster is sessile throughout the Chrysididae except in two Afrotropical amisegine genera, *Afrosega* and *Leptosega*. In *Afrosega* the petiole consists of one-quarter of T-I (Fig. 19) (41). In *Leptosega* it consists of one-sixth to one-seventh of T-I (Fig. 36) (42).

The phylogenetic relationships among amisegine genera in different zoogeographic regions are somewhat puzzling, particularly those in southern Africa (as discussed in Chapter 5). The American genera have the fewest derived features. In Africa, *Anachrysis* is relatively primitive whereas the other five genera are some of the most specialized. The African and Oriental and Australian genera can be distinguished from the American ones by the long metanotum lacking a raised medial disk, and the presence of three pronotal pits.

There are two major lineages in the American genera. The *Adelphe*-line is the least specialized, although both genera have a unique pronotal carina. The *Amisega* line is characterized by the lack of pronotal angles, no omaulus, and no scrobal sulcus.

The African genera can also be divided into two lineages: the primitive *Anachrysis* versus the other five, which are characterized by edentate tarsal claws and extreme brachyptery in both sexes. There are few derived characters that distinguish the genera in the latter group from each other, and further collecting may indicate that there

should be fewer valid genera.

Relationships among the Oriental and Australian genera are less clear. There are roughly three lineages, but we could find few definitive characteristics for these. The *Baeosega* group lacks an occipital carina, and this group and the *Saltasega* group lack a medial propodeal carina or a definitive enclosure. The *Rohweria* group has few derived features as a whole. They do have a U-shaped propodeal enclosure bisected by a medial carina, but this is actually the primitive condition in this region.

## KEY TO THE GENERA OF AMISEGINAE

1. Wingless or wings small and subequal in size to tegula	2
Wings well developed or, if reduced, longer than head.	14
2. Abdomen petiolate, petiole formed by constriction of anterior one-quarter to one-sixth of segment I (Figs 19 and 36); both sexes wingless	3
Abdomen sessile; development of wings varies	4
3. Abdominal petiole one-sixth as long as whole segment I (Fig. 36); without macrochaetae on head and thorax; pronotum not unusually thickened posteriorly; metanotum with 2 decumbent submedial teeth on posterior margin	
	<i>Leptosega</i> Krombein, p.119
Abdominal petiole one-quarter as long as segment I (Fig. 19); with macrochaetae on head and thorax; pronotal posterior margin thickened; metanotum simple posteriorly	
	<i>Afrosegia</i> Krombein, p.86
4. Tarsal claws edentate.	5
Tarsal claws with small perpendicular submedial tooth	6
5. Flagellum filiform; pronotal length medially less than 1.5x metanotal length (Fig. 42); scapal basin with numerous arched transverse ridges (Fig. 16a) (females)	
	<i>Obenbergerella</i> Strand, p.130
Flagellum short and fusiform; pronotal length medially 2.0–2.5 times metanotal length (Fig. 44); scapal basin with a few strong transverse rugae.	
	<i>Reidia</i> Krombein, p.132
6. Propodeum posterolaterally angulate; scutum not lobate laterally (Fig. 25); Oriental species.	
	<i>Baeosega</i> Krombein, p.99
Propodeum posterolateral margin rounded, not angulate; scutum lobate laterally, lobe conceals tegula and wing pads (Fig. 20) (if present)	7



7. Propodeum medially with dorsal surface; metanotum not reaching thoracic apex (Fig. 20), vertex with coarse contiguous punctures; scutum with coarse contiguous punctures arranged in longitudinal rows. *Alieniscus* Benoit, p.88  
 Propodeum medially without dorsal surface; metanotum nearly absent reaching thoracic apex, vertex with small separate punctures; scutum either finely and closely striate rugulose or with scattered punctures and fine shagreening 8
- 
8. Propodeal posterolateral margin rounded, not angulate. 9  
 Propodeum with posterolateral tooth, spine, or angle. 10
- 
9. Metanotum absent or reduced to a linear groove (Fig. 39); North American. *Microsega* Krombein, p.123  
 Metanotum large, over half as long as scutellum (Fig. 47); Asian Region *Serendibula* Krombein, p.138
- 
10. Propodeum with posterolateral angle long and acute, spine- like. 11  
 Propodeal angle short and blunt. 12
- 
11. Pronotum strongly convex, posterior margin obviously thickened; scutellum raised above scutum and metanotum in profile (Fig. 46); Oriental Region *Saltasega* Krombein, p.136  
 Pronotum gently convex, posterior margin not thickened; scutellum not elevated above scutum and metanotum in profile (Fig. 40); Australian Region *Myrmecomimesis* Dalla Torre, p.125
- 
12. Pronotum as long as or longer than scutum, scutellum, and metanotum combined; propodeum with well-developed dorsal surface rounding gradually to posterior face (Fig. 30) *Exopapua* Krombein, p.108  
 Pronotum shorter than scutum, scutellum, and metanotum combined; propodeum with little or no dorsal surface, posterior face abruptly declivitous 13
- 
13. Propodeum with 2 acute submedial teeth in dorsal view (Fig. 31) *Exova* Riek, p.110  
 Propodeum without 2 submedial teeth (Fig. 38) *Mahinda* Krombein, p.122
- 
14. Metanotum medially less than half as long as scutellum. 15  
 Metanotum medially more than half as long as scutellum. 19
- 
15. Propodeum with posterolateral angles; occipital carina well developed at least

- |   |    |
|---|----|
| dorsally  | 16 |
| Propodeum posterolaterally rounded, not angulate; occipital carina absent | 17 |
- 
16. Occipital carina present only dorsally; pronotum without furrow along anterior margin; brachypterous; propodeal angle slender and digitate (Fig. 41)  
*Nesogyne* Krombein, p.128  
 Occipital carina well developed dorsally and laterally; pronotum with furrow along anterior margin (Fig. 17); wings normal; propodeal angles usually short and acute.  
*Adelphe* Mocsáry, p.82
- 
17. Mesopleuron with omaulus (Fig. 22); metanotum without raised medial disk or differentially sculptured medial area; fore wing Rs extended by abruptly curved dark streak; southern Africa.  
*Anachrysis* Krombein, p.93  
 Mesopleuron without omaulus; metanotum with raised medial disk and medial area usually differentially sculptured; fore wing Rs extended by gently curved dark streak; Western Hemisphere  
 18
- 
18. Malar space long, at least half as long as eye height; gena with blade-like carina (Fig. 29); pronotum with short deep posteromedial groove.  
*Duckeia* Costa Lima, p.106  
 Malar space short, much less than half as long as eye height (Fig. 16*b*); gena without carina; pronotum without posteromedial groove.  
*Amisega* Cameron, p.90
- 
- |  |    |
|--|----|
| 19. Occipital carina absent                              | 20 |
| Occipital carina present, at least dorsally or laterally | 23 |
- 
- |  |    |
|--|----|
| 20. Stigma large, with R1 clearly delimited.           | 21 |
| Stigma acutely angulate apically, without R1 indicated | 22 |
- 
21. Tarsal claws edentate; scutum without parapsides  
*Baeosega* Krombein, p.99  
 Tarsal claws with submedial, erect tooth; scutum with parapsides.  
*Serendibula* Krombein, p.138
- 
22. Hind coxa with dorsobasal carina; clypeal margin not thickened  
*Mabinda* Krombein, p.122  
 Hind coxa without dorsobasal carina; clypeal margin thickened.  
*Imasega* Krombein, p.111
- 
23. Rs vein extended towards costal margin by stained remnant, juncture between vein and remnant sharply angulate (Fig. 43), remnant either straight or

- medially curved toward costal margin; propodeal tooth long and acute. 24  
 Rs vein and stained remnant or crease forming an even curve, remnant usually  
 medially curved away from costal margin; propodeal tooth short and blunt 25
- 
24. Scapal basin deep with dorsal and upper lateral margins carinate (Fig. 16c);  
 metanotal triangle differently sculptured than rest of notum; thoracic dorsum  
 without longitudinal ridges. *Perissosega* Krombein, p.131  
 Scapal basin shallow without dorsolateral carina; metanotal triangle sculpture  
 same as rest of notum; thoracic dorsum with extensive longitudinal ridges.  
*Atoposega* Krombein, p.97
- 
25. Mesopleuron with omaulus; metanotum without differently sculptured  
 medial enclosure; F-III-IX less than twice as long as broad in both sexes. 26  
 Mesopleuron without omaulus; metanotum with differentially sculptured  
 medial enclosure; F-III-IX at least twice as long as broad in males and broader  
 than long in females. 28
- 
26. Occipital carina and malar sulcus absent; mesopleuron without scrobal sulcus  
 (Fig. 23); pronotum without short medial groove or pit before lateral lobe.  
*Anadelphe* Kimsey, p.95  
 Occipital carina and vertical sulcus in malar space present; mesopleuron with  
 scrobal sulcus; pronotum with short medial groove and pit before lateral lobe. 27
- 
27. Fore wing medial vein arising at cu-a (Fig. 37); clypeus apically thickened;  
 pronotum with posteromedial pit. *Magdaliun* Kimsey, p.120  
 Fore wing medial vein arising before cu-a (Fig. 45); clypeus not apically  
 thickened; pronotum without posteromedial pit. *Robweria* Fouts, p.134
- 
28. Malar space without vertical sulcus. 29  
 Malar space with vertical sulcus. 30
- 
29. Hind coxa without dorsobasal carina; male F-III-IX at least twice as long as  
 broad. *Saltasega* Krombein, p.136  
 Hind coxa with dorsobasal carina; male F-III-IX about as long as broad.  
*Myrmecomimesis* Dalla Torre, p.125
- 
30. Face with strongly protruding transverse frontal carina, eye encircled by  
 carina; male F-III-IX about as long as broad *Bupon* Kimsey, p.101  
 Face without frontal carina, eye not encircled by carina; male F-III-IX at least  
 twice as long as broad 31
-

31. Pronotum strongly thickened apically, declivitous posteriorly (Fig. 28); tarsal claw edentate. *Colocar* Krombein, p.104  
 Pronotum not thickened apically or posteriorly declivitous; tarsal claw dentate. 32
- 
32. Vertex with impunctate welt between mid ocellus and occiput; malar space more than half eye height (Fig. 27); hind coxa with dorsobasal carina. *Cladobethylus* Kieffer, p.102  
 Vertex without welt; malar space less than half eye height; hind coxa without dorsobasal carina. 33
- 
33. Head without occipital carina; mesopleuron with scrobal sulcus (Fig. 34). *Isegama* Krombein, p.115  
 Head with occipital carina; mesopleuron without scrobal sulcus. 34
- 
34. Metanotum without medial enclosure or differential medial sculpturing; propodeum laterally rounded (Fig. 35). *Kryptosega* Kimsey, p.117  
 Metanotum with triangular medial enclosure, enclosure differentially sculptured than lateral area; propodeum laterally angulate (Fig. 33). *Indothrix* Krombein, p.113
- 

### *Adelphe* Mocsáry (Figs 17 and 18)

*Adelphe* Mocsáry 1890:46. Type: *Adelphe mexicana* Mocsáry 1890:46. Monotypic and desig. by Ashmead 1902.

*Pseudepyris* Ducke 1902d:204. Type: *Pseudepyris paradoxa* Ducke 1902d:205. Monotypic and desig. by Bodenstein 1939b.

*Adelpha* Schulz 1906:153. Invalid emendation of *Adelphe* Mocsáry.

*Parachrysis* Kieffer 1910:287. Type: *Parachrysis metallica* Kieffer 1910:288. Nec Gribodo 1879. Monotypic and desig. by Krombein 1957.

### Generic diagnosis

Malar space with vertical sulcus; occipital carina complete and well developed (Fig. 18c); eyes usually with long erect setulae (Fig. 18a, b); scapal basin shallow and smooth or cross-ridged; clypeal apical margin thickened; male mandible broad, flat, and foliaceous with one, or more commonly two, apical teeth (Fig. 18a, b); male flagellum elongate and cylindrical; female flagellum short and fusiform, flattened on one surface; pronotum flattened, with carina extending along anterior and lateral



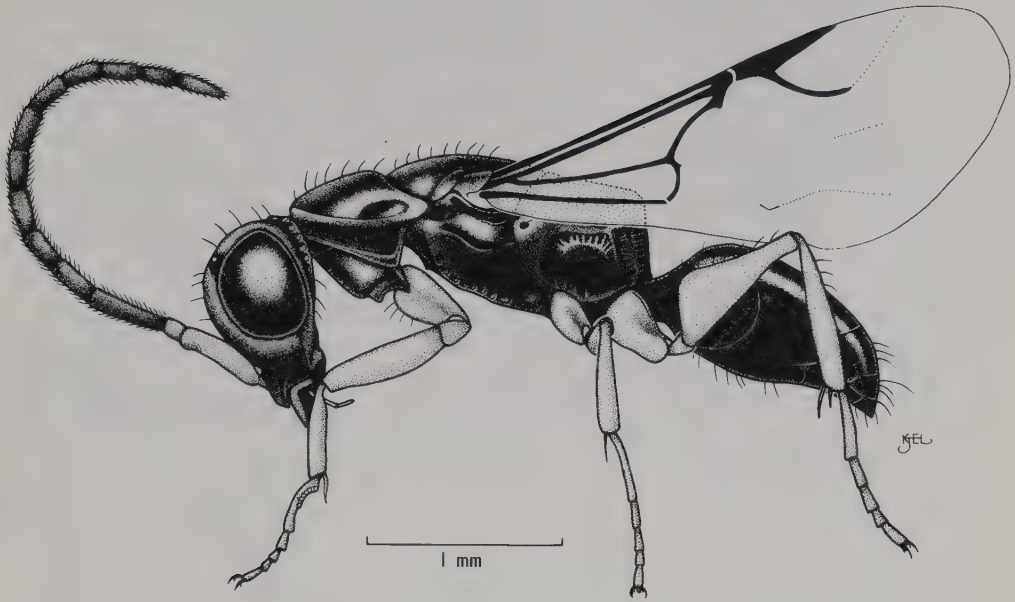


Fig. 17. *Adelphe brasiliensis*, male.

margins (Fig. 17); mesopleuron with omaulus and usually elongate and parallel-sided scrobal sulcus; scutum with deeply impressed notauli, and parapsides present; metanotum with ovoid or oblong, elevated medial disk, less than half as long as scutellum; propodeum with long dorsal surface, and abrupt posterior declivity, lateral angles virtually absent, to long and spike-like; hind coxa with dorsobasal carina; tarsal claw with large medial tooth; fore wing Rs extended at abrupt angle by dark streak, R1 distinct, medial vein arising before m-cu (Fig. 17); terga sharp-edged laterally.

### Hosts

The North American species, *anisomorphae*, has been reared from eggs of *Anisomorpha ferruginea* (Beauv.) (Phasmatidae) in Louisiana, Florida, Georgia, and New York (Krombein 1957). Hosts for other species are unknown.

### Distribution

*Adelphe* occurs from south-eastern Canada to northern Argentina and Paraguay, including a number of Caribbean Islands. Only a single species, *anisomorphae*, occurs north of Mexico.

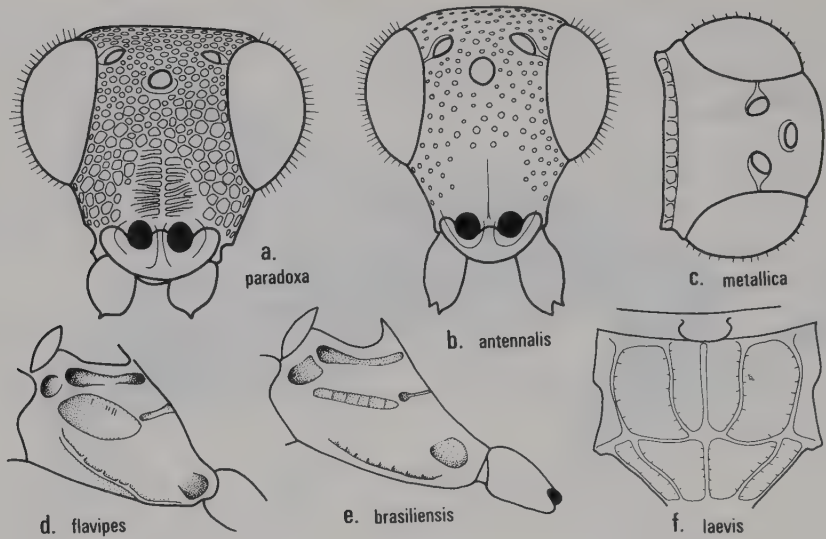


Fig. 18. *Adelphe*. (a), (b) face; (c) head, dorsum; (d), (e) mesopleuron; and (f) propodeum, posterior surface. Male, except as indicated.

## Discussion

*Adelphe* was most recently revised by Kimsey (1986d). This is one of the larger genera of Amiseginae, comprising 19 species, and there are undoubtedly additional, undescribed species, particularly in South America.

Of the American genera only *Adelphe* and *Nesogyne* have a laterally angulate or dentate propodeum. *Adelphe* can be readily distinguished from *Nesogyne* by the peculiar male mandibles, fully winged females, and the anterior and lateral pronotal carina. Broad, foliaceous male mandibles also occur in the African *Anachrysis* and South American *Anadelphe*. However, the angulate propodeum and the features that distinguish *Adelphe* from *Nesogyne* will separate it from these genera as well. Other diagnostic characters are the large occipital carina, long scrobal sulcus, and presence of a metanotal disk.

Sexual dimorphism is not as extreme in *Adelphe* as it is in many other amisegine genera. Males have oddly modified mandibles and the flagellum is elongate and slender. Female mandibles are slender and unmodified and the flagellum is short, broad, and the basal articles may be pale.

*Adelphe* is one of the more primitive amisegine genera, females have fully developed wings, and both sexes have eyes with long setulae, large occipital carina, and an angulate propodeum.

Diagnostic features in this genus include the presence or absence of cross-ridging in the scapal basin, colour of the antennal segments, thorax, and legs, shape of the scrobal

sulcus and metanotal disk, length of various facial measurements, and sculpturing of the propodeum. Five species, *jamaicensis*, *cylindrica*, *masneri*, *paradoxa*, and *robusta*, have cross-ridging in the scapal basin. In *jamaicensis* and *cylindrica* the anterior part of the pronotal carina is faint or absent. In most species the thorax is black, but it is red in *masneri*. The broad, foliaceous male mandibles are apically bidentate in all species except *paradoxa*, which has a single apical tooth. The scrobal sulcus is generally long and parallel-sided, but in *flavipes*, *laevis*, *longifacies*, and *anisomorphae* it is short and ovoid. The propodeum is divided into two dorsal and two posterior enclosures formed by a transverse medial and a vertical medial carina. These enclosures may be smooth as in *nesos*, rugose as in *anisomorphae*, or cross-ridged as in *brasiliensis*.

Females are known for very few species so it is difficult to say much about diagnostic features. The sculpturing of the scapal basin and thorax is the same as in males. However, the facial dimensions and coloration tend to be quite different. Some females, such as in *paradoxa*, have the basal flagellomeres white, which gives them a striking appearance.

### Checklist of *Adelphe*

---

*anisomorphae* Krombein. Nearctic: e USA, se Canada.

*anisomorphae* Krombein 1960:35. Holotype male; USA: Georgia, DeKalb Co., Stone Mountain (WASHINGTON).\*\*

*antennalis* Kimsey. Neotropical: Brazil.

*antennalis* Kimsey 1986d:197. Holotype male; Brazil: Teresopolis (GAINESVILLE-AEI).\*

*brasiliensis* Kimsey. Neotropical: Brazil.

*brasiliensis* Kimsey 1986d:199. Holotype male; Brazil: Rio de Janeiro, Mangaratiba, Muriqui (GAINESVILLE-AEI).\*

*calvata* Kimsey. Neotropical: Brazil.

*calvata* Kimsey 1986d:200. Holotype male; Brazil: Amazonas (GAINESVILLE-AEI).\*

*confusa* Kimsey. Neotropical: Panama.

*confusa* Kimsey 1986d:200. Holotype male; Panama: Chiriquí Prov., 15 km nw Hato del Volcan (OTTAWA).\*

*cubana* Kimsey. Nearctic: Cuba

*cubana* Kimsey 1986d:200. Holotype male; Cuba: Pico Turquino, n side (CAMBRIDGE).\*

*cylindrica* Kimsey. Neotropical: Brazil.

*cylindrica* Kimsey 1986d:200. Holotype female; Brazil: Mato Grosso, Sinop (GAINESVILLE-AEI).\*

*flavipes* (Ducke). Neotropical: n South America (Amazon Basin).

*flavipes* (Ducke) 1903:132. (*Pseudepyris*). Holotype male; Brazil: Pará (PARIS).\*

*insula* Kimsey. Neotropical: Jamaica.

*insula* Kimsey 1986d:201. Holotype male; Jamaica: Hardwar Gap (OTTAWA).\*

*jamaicensis* Kimsey. Neotropical: Jamaica.

*jamaicensis* Kimsey 1986d:201. Holotype male; Jamaica: Ocho Rios, Fern Gully (OTTAWA).\*

*laevis* Kimsey. Neotropical: s Mexico.

*laevis* Kimsey 1986d:201. Holotype male; Mexico: Veracruz, 33 km ne Catemaco (OTTAWA).\*

*longifacies* Kimsey. Neotropical: Colombia, Ecuador.

*longifacies* Kimsey 1986d:202. Holotype male; Ecuador: Pichincha, 16 km sē Santo Domingo (OTTAWA).\*

*masneri* Kimsey. Neotropical: Dominican Republic.

*masneri* Kimsey 1986d:202. Holotype male; Dominican Rep.: Loma El Penon, La Cumbre, P. Plata (OTTAWA).\*

*metallica* (Kieffer). Neotropical: Brazil, Ecuador, Peru.

*metallica* (Kieffer) 1910:288. (*Parachrysis*). Holotype male; Brazil: Pará (SAN FRANCISCO).\*

*mexicana* Mocsáry. Neotropical: s Mexico.

*mexicana* Mocsáry 1890:46. Holotype male; Mexico: Orizaba (GENEVA).\*

*nesos* Kimsey. Neotropical: Guadeloupe, Dominica, Trinidad Isl.

*nesos* Kimsey 1986d:203. Holotype male; Guadeloupe Isl.: Domain Duclos Petit Bourg, Forest Costarel (GAINESVILLE-FSCA).\*

*paradoxa* (Ducke). Neotropical: n South America.

*paradoxa* (Ducke) 1902d:205. (*Pseudepyris*). Lectotype male (desig. Kimsey herein); Brazil: Pará (PARIS).\*

*puertoricana* Kimsey. Neotropical: Puerto Rico.

*puertoricana* Kimsey 1986d:203. Holotype male; Puerto Rico: El Yunque Sta., Lugillo Forest (OTTAWA).\*

*robusta* Kimsey. Neotropical: Costa Rica to Brazil.

*robusta* Kimsey 1986d:203. Holotype male; Panama: Zona del Canal, Barro Colorado Isl. (DAVIS).\*

---

### *Afrosega* Krombein (Fig. 19)

*Afrosega* Krombein 1983b:141. Type: *Afrosega petiolata* Krombein 1983b:143. Orig. desig.



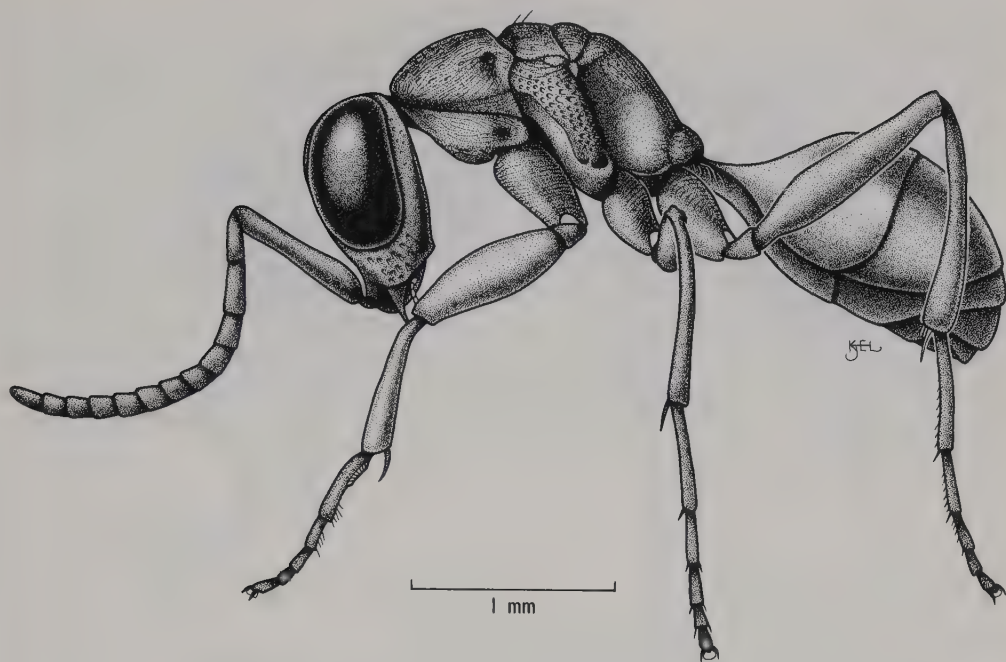


Fig. 19. *Afrosega petiolata*, male.

### Generic diagnosis

Face coarsely rugosopunctate in basin; malar space without vertical sulcus; occipital carina present dorsally; ocelli tiny, mid ocellus widely separated from hind ocelli; flagellum short and broad, intermediate flagellomeres about as long as broad; pronotum without medial groove, with pit before lateral lobe, about as long as combined lengths of scutum and metanotum, posterior margin thickened; scutum with smooth anterior declivity, and without notauli or parapsides; mesopleuron without scrobal sulcus, with omaulus; metanotum and scutellum subequal in length, metanotal posterior margin faintly indicated, without medial enclosure or disk; propodeum without lateral angle or dorsal surface, posteriorly and laterally rounded; both sexes apparently wingless, or wing pads and tegula covered by lateral scutal lobe; hind coxa without dorsobasal carina; tarsal claws dentate with huge arolium; thorax with extensive dense cross-ridging, particularly on coxae; abdomen petiolate, petiole one-third length of T-I.

### Distribution

These species are found in South Africa. They are caught in malaise traps, which is unusual for wingless forms, suggesting that they are more arboreal than most wingless species.

## Discussion

*Afrosega* is one of the more unusual amisegines. Of all the genera in this subfamily only *Afrosega* and *Leptosega* have petiolate abdomens. *Afrosega* can be distinguished by the longer petiole, posteriorly thickened pronotum, and specialized large setae on the head and thorax. There is little sexual dimorphism in this genus, the principle difference being the number of abdominal segments. Both sexes are wingless.

The two *Afrosega* species differ primarily in the presence of macrochaetae on the abdomen of *capensis* and coarse irregular sculpturing of the scapal basin in *petiolata*.

The majority of African genera, with the exception of *Anachrysis*, share a number of unusual traits: malar space without vertical sulcus, scutum greatly expanded laterally covering any vestiges of tegulae and wings (if remaining), both sexes wingless, tarsal claws edentate (unknown in *Obenbergerella*), and the metanotum and propodeum almost completely fused so that the suture between the two is nearly indistinguishable. *Afrosega* is discussed in detail by Krombein (1983b).

## Checklist of *Afrosega*

---

*capensis* Krombein. Afrotropical: South Africa (Cape Prov.).

*capensis* Krombein 1983b:144. Holotype female; South Africa: Cape Prov., Cape of Good Hope Nature Reserve (WASHINGTON).

*petiolata* Krombein. Afrotropical: South Africa (Cape Prov.).

*petiolata* Krombein 1983b:143. Holotype male; South Africa: Cape Prov., Stormsrieviere, Skuinsbos Forest (PRETORIA-NIC).\*\*

---

## *Alieniscus* Benoit (Fig. 20)

*Alieniscus* Benoit 1951:91. Type: *Alieniscus arnoldi* Benoit 1951:92. Monotypic and desig. by Krombein 1957.

## Generic diagnosis

Malar space without vertical sulcus; vertex with coarse, contiguous, punctation; thoracic dorsum with punctures coarse, contiguous, and organized in longitudinal rows; pronotum with pit before lateral lobe and 1.3 times as long as scutum; mesopleuron without distinct scrobe and with omaulus; scutum with lateral lobes concealing (if present) vestigial wings and tegulae; both sexes essentially wingless; propodeum with dorsal surface and posterolaterally rounded; femora ventrally and tibiae dorsally with long erect setae; hind basitarsus as long as, or longer than, length of second and third tarsal segments combined; tarsal claws edentate.

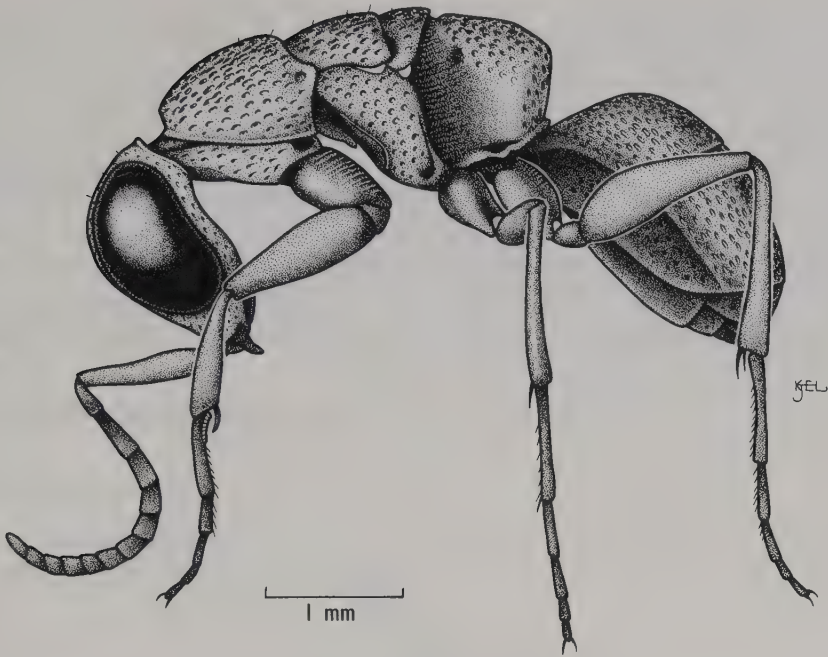


Fig. 20. *Alieniscus mutilloides*, female.

## Hosts

Unknown.

## Distribution

One species is known from Zimbabwe and the other from northern South Africa.

## Discussion

As discussed under *Afrosega*, *Alieniscus* is one of the wingless African genera characterized by the fused metanotum-propodeum, edentate tarsal claws, laterally expanded scutum, and malar space without a vertical sulcus. According to Krombein (1957) *Alieniscus* is the most primitive of these genera; individuals are coarsely sculptured and the metanotum does not cover the entire dorsal surface of the propodeum along the mid-line. In addition, the face is deeply and densely punctate with large prominent cross-ridges in the scapal basin. Males are unknown for this genus.

The two listed species are distinguished by differences in coloration (*arnoldi* tends to be lighter red), presence (*arnoldi*) or absence of longitudinal rugae on the scutellum and metanotum + propodeum, and punctation of the abdomen. Krombein (1957) discussed diagnostic features and listed species for *Alieniscus*.

### Checklist of *Alieniscus*

*arnoldi* Benoit. Afrotropical: Zimbabwe, Botswana.

*arnoldi* Benoit 1951:91. Holotype female; Zimbabwe: Sawmills (CAPE TOWN).

*mutilloides* Krombein. Afrotropical: n South Africa, Mozambique.

*mutilloides* Krombein 1957:202. Holotype female; South Africa: Zululand, White Umfolozi River (LONDON).\*

*Amisega* Cameron (Figs 4b, 7b, 8e, 9c, 16b, d, f, g, and 21)

*Amisega* Cameron 1888:457. Type: *Amisega cuprifrons* Cameron 1888:457. Monotypic and desig. by Ashmead 1902.

*Mesitiopterus* Ashmead 1902:231. Type: *Mesitiopterus kahli* Ashmead 1902:231. Orig. desig.

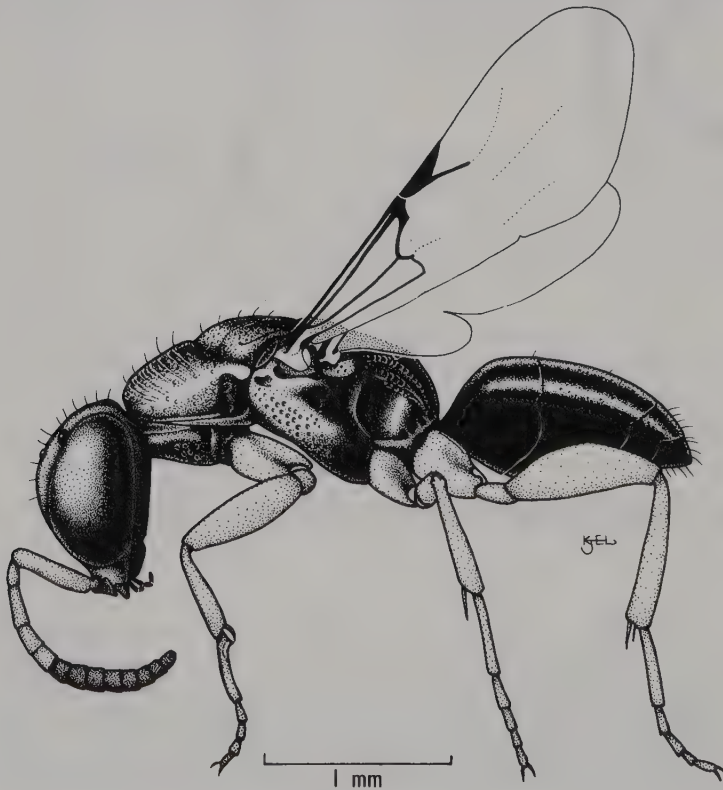


Fig. 21. *Amisega flavicrus*, female.

### Generic diagnosis

Malar space short, less than one-quarter eye height (Fig. 16b), with vertical sulcus; eyes with tiny, sparse setulae; occipital carina present dorsally; scapal basin smooth or



finely cross-ridged (Fig. 16*b*); flagellum slender and cylindrical in both sexes; pronotum with short anterior declivity, length 0.6–0.8 times combined lengths of scutum, scutellum, and metanotum; scutum with notauli shallow, or even obsolescent anteriorly in some species, parapsides clearly indicated; mesopleuron punctate along anterior half, posteriorly polished; scrobal sulcus absent or indicated by fine line (Fig. 21); metanotum narrow, with medial disk linear and obscure, about 0.2 times as long as scutellum; propodeum broadly rounded posteriorly and laterally, without posterior declivity or lateral angles; hind coxa with dorsobasal carina; tarsal claws with perpendicular medial tooth; fore wing stigma broad, R1 clearly indicated, Rs extended by evenly curved dark streak, medial vein arising before m–cu (Fig. 7*b*)

## Hosts

Unknown

## Distribution

This genus occurs in the south-eastern United States as far west as Arizona, and south to southern Brazil and Paraguay.

## Discussion

*Amisega* is one of the largest amisegine genera, with 21 species described. They are characterized by the narrow, parallel-sided metanotum, which is less than half as long as the scutellum; malar space less than one-eighth eye height; propodeum laterally rounded; mesopleuron without medial or lateral grooves or carinae; and head with ventral foveae on either side of genal bridge. The combination of these characteristics will immediately separate *Amisega* from all other amisegine genera. It appears to be most closely related to the wingless *Microsega*, and to a lesser extent to *Duckeia*.

Species distinctions tend to be difficult in *Amisega*, and in many cases colour patterns tend to be more useful than structural features. In addition, unlike other chrysidids, males tend to be more structurally conservative than females, with few colour differences between species. Females are almost as commonly collected as males in this genus, another unusual feature. Diagnostic characters include the extent of transverse striation on the head and thorax, colour of the legs, antenna, and T-I, and the sculpturing of the mesopleuron and propodeum. Several species have one or more yellow antennal articles (*bennetti*, *chiapana*, *flavicrus*, *floridensis*) and/or yellow legs (*bennetti*, *bicolor*, *flavicrus*, *flavipes*, *perviridis*, *semiflava*). The most unusual coloration occurs in female *cooperi* in which the thoracic dorsum is bright coppery red and the wings are strongly banded. *Amisega cooperi* also has the posterolateral corners of the scutum projecting dorsally. The propodeum is divided by carinae into two dorsal and two posterior enclosures. These vary from species to species, from being completely smooth in most species to striate (*chiapana*, *cooperi*, *striata*). Kimsey (1987*c*) gave a discussion of the genus, keys, and descriptions of new species, with illustrations.

## Checklist of *Amisega*

---

*aeneiceps* Ducke. Neotropical: n South America (Amazon Basin).

*aeneiceps* Ducke 1903:130. Lectotype male (desig. Kimsey herein); Brazil: Itatuba (PARIS).\*

*azurescens* Ducke. Neotropical: Brazil.

*azurescens* Ducke 1903:131. (*aeneiceps* var.). Lectotype male (desig. Kimsey herein); Brazil (PARIS).\*

*belizensis* Kimsey. Neotropical: Belize.

*belizensis* Kimsey 1987c:62. Holotype female; Belize: Middlesex (OTTAWA).\*

*bennetti* Kimsey. Neotropical: Trinidad, Venezuela.

*bennetti* Kimsey 1987c:62. Holotype female; Trinidad: Curepe (OTTAWA).\*

*bicolor* Kimsey. Nearctic: n Mexico.

*bicolor* Kimsey 1987c:63. Holotype female; Mexico: Sinaloa, 20 mi e Concordia (OTTAWA).\*

*chiapana* Kimsey. Neotropical: s Mexico.

*chiapana* Kimsey 1987c:65. Holotype female; Mexico: Chiapas, Yerba Buena, 20 mi n Bochil (OTTAWA).\*

*cooperi* Krombein. Neotropical: Costa Rica.

*cooperi* Krombein 1957:162. Holotype male; Costa Rica: Turrialba (WASHINGTON).\*\*

*cuprifrons* Cameron. Neotropical: Panama.

*cuprifrons* Cameron 1888:457. Holotype male (not female); Panama: Bugaba (LONDON).\*

*evansi* (Krombein). Nearctic: cen. Mexico.

*evansi* (Krombein) 1960:30. (*Mesitiopterus*). Holotype male; Mexico: Morelos, Huanjintlan (WASHINGTON).\*

*flavicus* Kimsey. Neotropical: Trinidad, Venezuela.

*flavicus* Kimsey 1987c:66. Holotype female; Trinidad: Curepe (OTTAWA).\*

*flavipes* Kimsey. Neotropical: Brazil.

*flavipes* Kimsey 1987c:67. Holotype female; Brazil: Bahia, Encruzilhada (GAINESVILLE-AEI).\*

*floridensis* (Krombein). Nearctic: se USA.

*floridensis* (Krombein) 1960:28. (*Mesitiopterus*). Holotype male; USA: Florida, Alachua Co., Gainesville (WASHINGTON).\*\*

*kablui* (Ashmead). Nearctic: e USA, se Canada.

*kablui* (Ashmead) 1902:231. (*Mesitiopterus*). Holotype male; USA: Kansas, Lawrence (WASHINGTON).\*\*

*mocsaryi* Ducke. Neotropical: n South America (Amazon Basin).

*mocsaryi* Ducke 1902c:142. Lectotype male (desig. Kimsey herein); Brazil: Itatuba (PARIS).\*

*cyaniceps* Ducke 1911:93. (*mocsaryi* var.). Syntype males, females; Brazil: Amazonas (BUDAPEST).\*

*perviridis* Kimsey. Neotropical: Trinidad.

*perviridis* Kimsey 1987c:67. Holotype female; Trinidad: Curepe (OTTAWA).\*

*rufilateralis* Kimsey. Neotropical: Brazil.

*rufilateralis* Kimsey 1987c:68. Holotype female; Brazil: Guanabara, Repressa do Rio Grande (GAINESVILLE-AEI).\*

*semiflava* Kimsey. Neotropical: Brazil.

*semiflava* Kimsey 1987c:69. Holotype female; Brazil: Goias, Jatai (GAINESVILLE-AEI).\*

*similis* Kimsey. Neotropical: Brazil.

*similis* Kimsey 1987c:70. Holotype male; Brazil: Guanabara, Repressa do Rio Grande (GAINESVILLE-AEI).\*

*striata* Kimsey. Neotropical: Costa Rica.

*striata* Kimsey 1987c:71. Holotype male; Costa Rica: Guanacaste, Junquillal Beach (DAVIS).\*

*tenebrae* Kimsey. Neotropical: Brazil.

*tenebrae* Kimsey 1987c:71. Holotype female; Brazil: Teresopolis (GAINESVILLE-AEI).\*

*townsendi* (Ashmead). Neotropical: s Mexico.

*townsendi* (Ashmead) 1902:231. (*Mesitiopterus*). Holotype male; Mexico: Veracruz, Jicoltepec near San Rafael (WASHINGTON).\*

## *Anachrysis* Krombein (Fig. 22)

*Anachrysis* Krombein 1986a:509. Type: *Anachrysis paradoxa* Krombein 1986a:511. Monobasic and orig. desig.

## Generic diagnosis

Malar space with vertical sulcus; eyes with sparse short setulae; male mandible broad, flattened towards apex, and apically dentate; scapal basin deep, with coarse cross-ridging; occipital carina absent; genal area abruptly angulate to occiput and abruptly widened behind lower third of eye; male clypeus basally with low, broad triangular area, apical part depressed and thin, laterally smooth with edge reflexed into colourless lamella; female clypeus simple; genal bridge concave; male flagellum elongate and cylindrical; female flagellum short and fusiform, flattened on one surface; pronotum 0.8 times as long as combined lengths of scutum, scutellum, and metanotum, with

three anterior pits and short deep posteromedial groove, lateral lobe not reaching tegula; scutum with deep, curved notauli and straight parapsides; metanotum about 0.25 times as long as scutellum, without distinct medial area; mesopleuron with scrobal sulcus and omaulus; propodeum broadly rounded laterally and posteriorly, without lateral angle or posterior declivity; hind coxa without dorsobasal carina; tarsal claw with small perpendicular medial tooth; fore wing stigma + R1 long and slender, Rs extended at abrupt angle by dark streak, medial vein arising before m-cu; terga coarsely punctate and sharp-edged laterally; T-II and S-II with shallow medial emargination.

### Hosts

Unknown.

### Distribution

*Anachrysis* occurs in South Africa.



Fig. 22. *Anachrysis* sp., male.



## Discussion

The presence of *Anachrysis* in Africa is an enigma. All of the African genera are wingless in both sexes with many derived characteristics, except *Anachrysis* in which males and females are fully winged. This genus more closely resembles genera in the Americas than any others, due to the winged condition, narrow parallel-sided metanotum, and posterolaterally rounded propodeum. In addition, like some of the American genera (*Anadelphe*, *Adelphe*), the sexes differ primarily in the modification of the male mandible, which tends to be broad and flat in front view and an upside down L-shape in profile.

The two species of *Anachrysis* differ in the dorsal sculpturing of the thorax, shape of the apex of T-II, and shape of the male clypeus. The clypeus of *paradoxa* is apically depressed and then reflexed outward, laterally, as a colourless lamella. The undescribed species of *Anachrysis* has a sublateral, comma-shaped carina on the pronotum. In *paradoxa* T-II is apicomediaally emarginate. This genus is discussed in detail and illustrated by Krombein (1986a).

## Checklist of *Anachrysis*

---

*paradoxa* Krombein. Afrotropical: South Africa, Botswana.

*paradoxa* Krombein 1986a:511. Holotype male; South Africa: Transvaal, Langjan Nature Res. (PRETORIA-NIC).\*

---

## *Anadelphe* Kimsey (Fig.23)

*Anadelphe* Kimsey 1987c:72. Type: *Anadelphe simplifacies* 1987c:73. Orig. desig.

## Generic diagnosis

Eyes with long erect setulae; malar space with vertical sulcus; occipital carina complete and well developed; scapal basin flattened and smooth; flagellum short and fusiform in both sexes; male mandibles broad and flattened with two small apical teeth; pronotum as long as scutum, without medial groove or pit and without pit before lateral lobe; scutum with well-developed notauli and parapsides; mesopleuron with omaulus and without scrobal sulcus; both sexes fully winged, fore wing Rs extended by evenly curved dark streak, R1 0.5 times as long as stigma or longer, medial vein arising before cu-a; metanotum 0.7 times as long as scutellum, elevated medial area without differential sculpturing or punctation; propodeum with long dorsal surface, posteriorly rounded to steep posterior declivity and laterally rounded; tarsal claw with slender medial tooth; hind coxa without dorsobasal carina; terga rounded laterally.

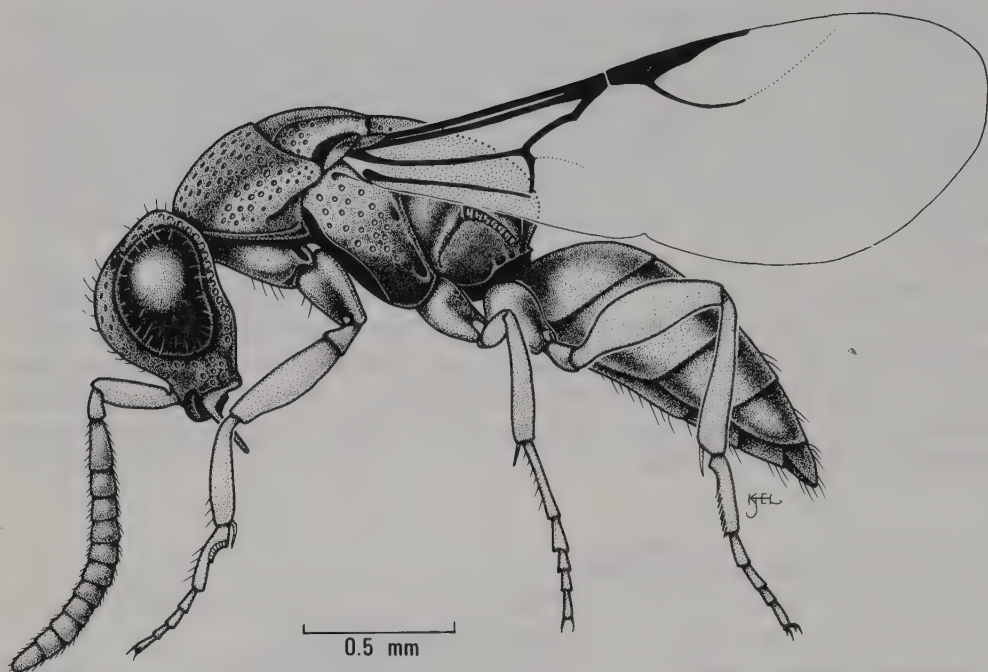


Fig. 23. *Anadelphe simplifacies*, male.

### Hosts

Unknown.

### Distribution

Members of this genus have been collected in Brazil and Ecuador.

### Discussion

The broad, flattened male mandibles, complete occipital carina, long ocular setulae, thickened clypeal apex, dentate tarsal claws, and long, exposed dorsal propodeal surface suggest a close relationship between *Anadelphe* and *Adelphe*. However, *Anadelphe* lacks the pronotal carina, scrobal sulcus, and lateral propodeal angles characteristic of *Adelphe*. Unlike all other American amisegines *Anadelphe* has an obsolescent malar sulcus and the metanotum is more than half as long as the scutellum. These species are also much less coarsely punctate than other American amisegines. The orange coloration, sparse punctation, and broadly rounded clypeus separates *alvarengai* from

*simplifacies*. This genus was discussed and illustrated by Kimsey (1987c).

### Checklist of *Anadelphe*

---

*alvarengai* Kimsey. Neotropical: Brazil.

*alvarengai* Kimsey 1987c:72. Holotype female; Brazil: Mato Grosso, Itaum Dourados (OTTAWA).\*

*simplifacies* Kimsey. Neotropical: Ecuador.

*simplifacies* Kimsey 1987c:73. Holotype male; Ecuador: Pastaza, 22 km sw Puyo (OTTAWA).\*

---

### *Atoposega* Krombein (Fig. 24)

*Atopogyne* Krombein 1957:184. Type: *Atopogyne lineata* Krombein 1957:186. Nec Forel 1911. Orig. desig.

*Atoposega* Krombein 1960:33. Repl. name for *Atopogyne* Krombein.

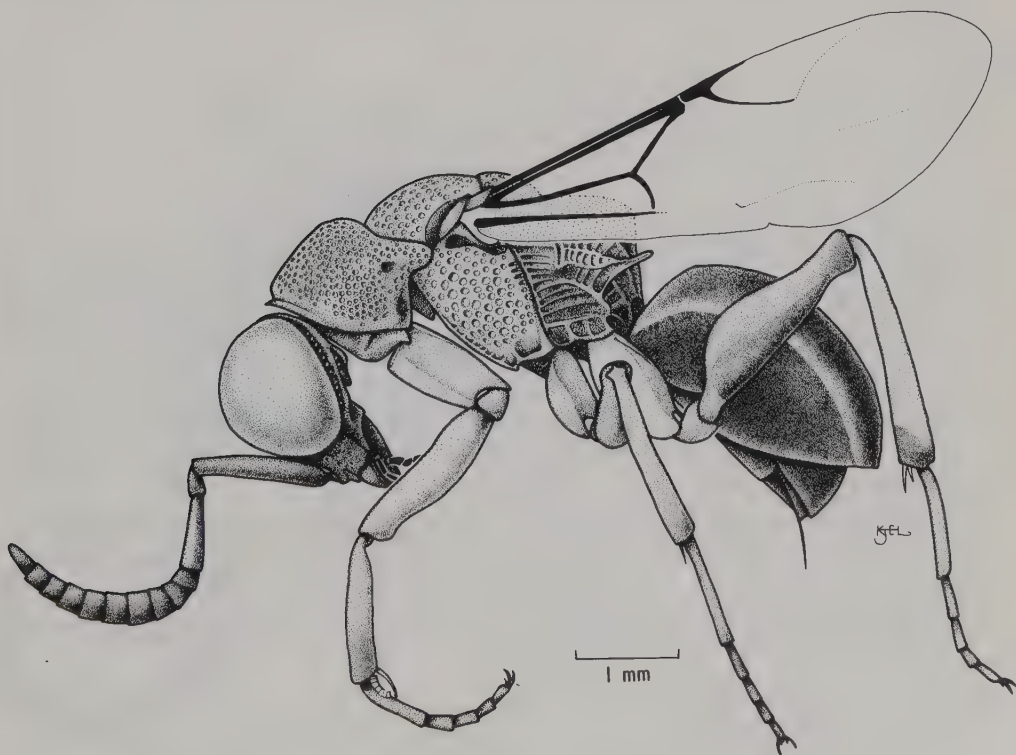


Fig. 24. *Atoposega simulans*, female.

### Generic diagnosis

Occipital carina well developed; eyes with tiny sparse setulae; eye encircled by carina; scapal basin deep, wide, and coarsely cross-ridged; malar space with vertical groove; female flagellum short, fusiform, and flattened on one surface; pronotum with posteromedial groove and deep pit before lateral lobe, 0.8 times as long as combined lengths of scutum, scutellum, and metanotum; scutum with notauli deep and narrow, without parapsides; mesopleuron evenly punctate, omaulus faint, scrobal sulcus absent; metanotum elongate, subequal in length to scutellum, with triangular medial enclosure; propodeum dorsal surface bending abruptly to posterior declivity, lateral angles long and spike-like; hind coxa with dorsobasal carina; tarsal claw with large medial tooth; female fully winged; fore wing R1 clearly indicated, medial vein arising before cu-a, Rs extended at abrupt angle by dark streak; wings densely setose and often banded.

Male unknown.

### Host

Unknown.

### Distribution

*Atoposega* species have been collected in Burma, Borneo, and Malaysia.

### Discussion

These are relatively large (4.5–5.5 mm long), heavy-bodied amisegines, known only from females. Unlike many other Asian genera these females are fully winged. Diagnostic features are the pale red and black coloration, long metanotum, propodeum with lateral tooth, occipital carina complete, mesopleuron with omaulus, and wings with unusually dense setae.

Although males are unknown, evidence from other genera indicates that they should also exhibit the diagnostic features listed above. In addition, the flagellum should be long, slender, and cylindrical in cross-section.

The three species are distinguished by the length of the pronotum, presence of patterned wings (*lineata*, *simulans*), and the fore femur rough and coarsely punctate (*riekei*, *simulans*).

*Atoposega* was discussed and illustrated to some extent by Krombein (1957) and Kimsey (1986e).

### Checklist of *Atoposega*

---

*lineata* (Krombein). Oriental: Borneo.

*lineata* (Krombein) 1957:186. (*Atopogyne*) Holotype female; Borneo: Sandakan



(WASHINGTON).

*rieki* (Krombein). Oriental: Burma.

*rieki* (Krombein) 1957:187. (*Atopogyne*) Holotype female; Burma ('Birmanie') (PARIS).

*simulans* Kimsey. Oriental: Malaysia.

*simulans* Kimsey 1986e:153. Holotype female; Malaysia: Pasoh Forest Res., Negri Sembilan (GAINESVILLE-AEI).\*

---

### *Baeosega* Krombein (Fig. 25)

*Baeosega* Krombein 1983a:43. Type: *Baeosëga torrida* Krombein 1983a:44. Orig. desig.

### Generic diagnosis

Occipital carina and malar sulcus absent; eyes with dense erect setulae; scapal basin shallow and cross-ridged; male and female flagellum elongate and cylindrical; pronotum strongly convex, longer than broad, with fine medial groove and shallow pit before lateral lobe, 0.9 times, in male, and 1.3 times, in female, as long as combined

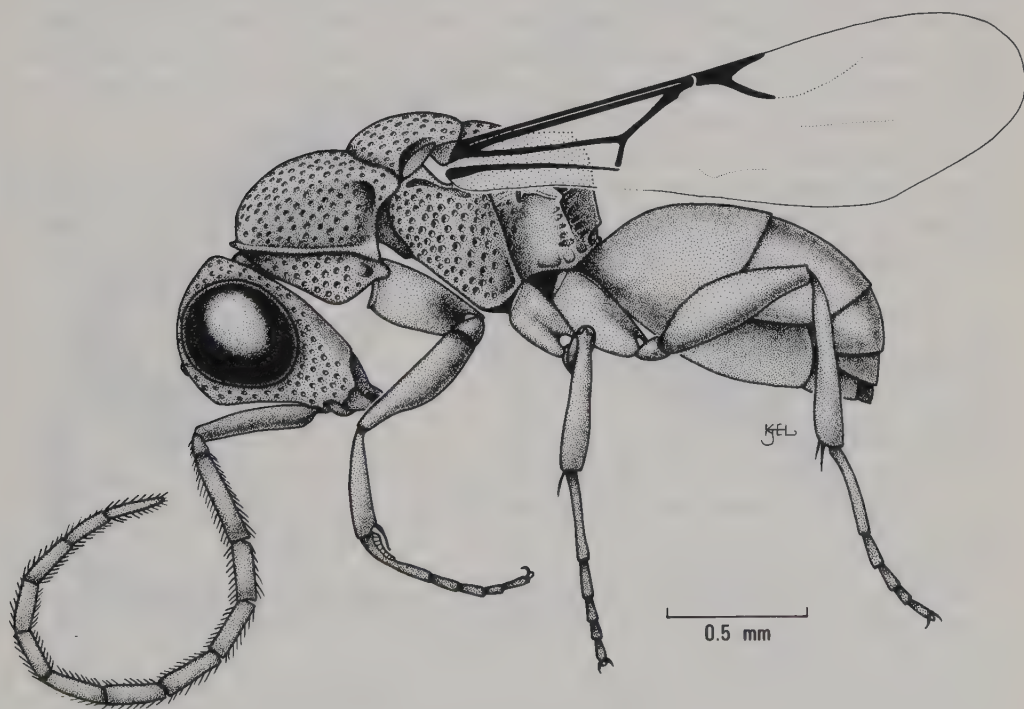


Fig. 25. *Baeosega humida*, male.

lengths of scutum, scutellum, and metanotum; scutum with notauli and without parapsides; mesopleuron without scrobal sulcus or omaulus; female strongly brachyp-terous; male fully winged, fore wing stigmal apex acutely angulate, R1 not clearly indicated, medial vein arising at cu-a; metanotum 0.7–0.8 times as long as scutellum; propodeum with long dorsal surface and abrupt posterior declivity, lateral angle short and blunt; hind coxa with dorsobasal carina; tarsal claw edentate; abdominal punctures small and dense.

### Hosts

Unknown.

### Distribution

This genus is recorded from Sri Lanka and southern India.

### Discussion

These are tiny, slender chrysidids, ranging in length from 1.8 to 2.5 mm. Males are fully winged, females wingless. *Baeosega* superficially resemble *Serendibula*. However, they can be distinguished from *Serendibula* by the propodeum having lateral angles, T-II without close longitudinal carinae, tarsal claws edentate in both sexes, and males without parapsides. Other diagnostic features include the lack of a malar sulcus (in females), occipital carina, and omaulus.

Species distinctions involve relative proportions of different parts of the head, pronotal length, vestiture and sculpturing of T-I and –II, and body colour. In *torrida* the male legs are red, and T-I–II is shagreened, and the female head is red. *Baeosega* was discussed in detail, with species keys, but no illustrations by Krombein (1983a).

### Checklist of *Baeosega*

---

*humida* Krombein. Oriental: Sri Lanka.

*humida* Krombein 1983a:46. Holotype female; Sri Lanka: Central Prov., Kandy Dist., Kandy, Udawattakele Sanct. (WASHINGTON).\*\*

*laticeps* Krombein. Oriental: Sri Lanka.

*laticeps* Krombein 1983a:48. Holotype female; Sri Lanka: Central Prov., Kandy Dist., Kandy, Udawattakele Sanct. (WASHINGTON).

*torrida* Krombein. Oriental: Sri Lanka.

*torrida* Krombein 1983a:44. Holotype female; Sri Lanka: Southern Prov., Kegalla Dist., Kitulgala, Bandarakele Jungle (WASHINGTON).

---

*Bupon* Kimsey (Fig. 26)

*Bupon* Kimsey 1986e:154. Type: *Bupon pasohanus* Kimsey 1986e:156. Orig. desig. and monobasic.

**Generic diagnosis**

Scapal basin coarsely cross-ridged; malar space with vertical sulcus; brow with strongly projecting transverse ridge; eyes encircled by irregular carina; occipital carina present; male flagellum short and cylindrical; pronotum 1.2 times as long as scutum, with posteromedial pit and pit before lateral lobe; mesopleuron without omaulus or scrobal sulcus; fore wing with long slender stigma, Rs extended by evenly curved dark streak, medial vein arising before cu-a, R1 not indicated; metanotum 0.9 times as long as scutellum, medial enclosure punctate; propodeum with short dorsal surface, abruptly declivitous posteriorly, lateral angles blunt and short; hind coxa with dorsobasal carina; terga covered with dense small punctures; tarsal claw with large perpendicular sub-medial tooth.

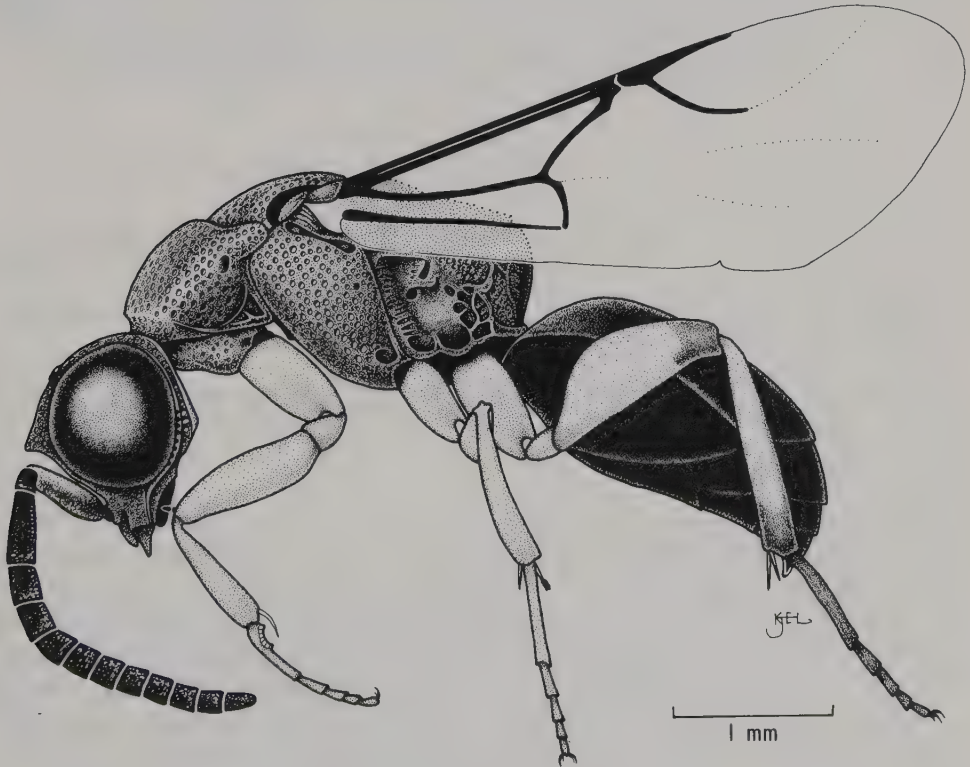


Fig. 26. *Bupon pasohanus*, male.

Female unknown.

## Host

Unknown.

## Distribution

This monotypic genus is known from Malaysia.

## Discussion

The most distinctive characteristic of *Bupon* is the projecting frontal carina. In the Amiseginae the only other group with any indication of a TFC is *Perissosega*. This is a characteristic which otherwise occurs commonly in the Chrysidini, and rarely in *Hedychridium* (Elampini). Other diagnostic features of *Bupon* are the short, cylindrical male flagellum, long pronotum, and propodeum with blunt lateral angles and short dorsal surface. The lack of most of the derived characteristics found in the Amiseginae shows a resemblance to *Cladobethylus*. These are relatively large (4.5–5.5 mm long), dark coloured wasps. *Bupon* is discussed and illustrated by Kimsey (1986e).

## Checklist of *Bupon*

---

*pasobanus* Kimsey. Oriental: Malaysia.

*pasobanus* Kimsey 1986e:156. Holotype male; Malaysia: Pasoh Forest Res., Negri Sembilan (GAINESVILLE-AEI).\*

---

## *Cladobethylus* Kieffer (Figs 16*i* and 27)

*Cladobethylus* Kieffer 1922:67. Type: *Cladobethylus cruciger* Kieffer 1922:69. Orig. desig.

## Generic diagnosis

Malar space with vertical sulcus; occipital carina present, weaker dorsally than laterally; head very long; vertex with low impunctate welt running from mid ocellus to occiput; eyes with short sparse setulae; scapal basin with at least some cross-ridging; male flagellum elongate and cylindrical; female flagellum short, fusiform, and flattened on one surface; pronotum with narrow posteromedial groove, 0.5–0.6 times as long as combined lengths of scutum, scutellum, and metanotum; mesopleuron without scrobal sulcus or omaulus (Fig. 27); scutum with notauli and parapsides; metanotum 1.2 times as long as scutellum; both sexes fully winged, fore wing Rs extended by evenly curved dark streak, stigma large and broad, R1 not indicated, medial vein arising before cu-a; propodeum with long dorsal surface and abrupt posterior declivity, lateral angle short and blunt (Fig. 16*i*); hind coxa with dorsobasal carina; tarsal claws edentate in females and with one small sub-basal tooth in males.



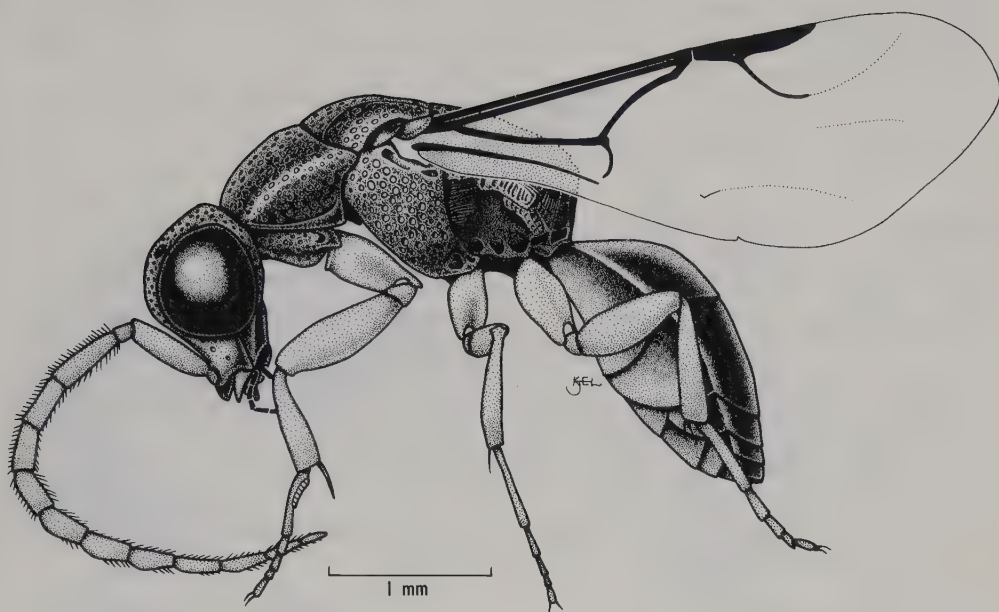


Fig. 27. *Cladobethylus gilbus*, male.

### Hosts

Unknown

### Distribution

This genus occurs throughout tropical Asia. Specimens have been seen from New Guinea, Malaysia, Vietnam, Sarawak, N. Borneo, southern India, the Philippines, and Japan.

### Discussion

*Cladobethylus* species are moderate sized amisegines ranging from 2.5–5.0 mm in length. The most distinctive characteristic of the group is the presence of a welt extending from the mid ocellus to the posterior margin of the head. In some individuals this welt appears instead to be a shiny impunctate stripe. The only other genus with this impunctate stripe on the vertex is *Magdalius*. *Cladobethylus* can be immediately distinguished from *Magdalius* by the absence of sulci or carinae on the mesopleuron, long slender male flagellum, and pronotum with a posteromedial groove.

*Cladobethylus* is widespread and there are undoubtedly a number of undescribed species. Diagnostic features within the genus include facial dimensions and sculptur-

ing, antennal colour, pronotal length, presence of metallic coloration, and sculpturing of the metapleuron. *Cladobethylus japonicus* has unusually long ocular setulae. Males, and perhaps females of *gilbus* when known, have two ovoid foveae on either side of the genal bridge beneath the head.

This genus was discussed in detail by Krombein (1980, 1983a) and illustrated in this study and in Kimsey (1986e).

### Checklist of *Cladobethylus*

---

*aquilus* Kimsey. Oriental: New Guinea.

*aquilus* Kimsey 1986e:157. Holotype male; New Guinea: Bulolo (GAINESVILLE-AEI).\*

*aridulus* Krombein. Oriental: Sri Lanka.

*aridulus* Krombein 1980:255. Holotype female; Sri Lanka: Eastern Prov., Amparis Dist., Ekgal Aru Sanctuary (WASHINGTON).

*ceylonicus* Krombein. Oriental: Sri Lanka.

*ceylonicus* Krombein 1980:253. Holotype male; Sri Lanka: Central Prov., Kandy Dist., Adams Peak (WASHINGTON).

*coeruleus* Kieffer. Oriental: Philippines.

*coeruleus* Kieffer 1922:71. Holotype female; Philippines: Mindanao, Butan (Mus. ?).

*cruciger* Kieffer. Oriental: Philippines.

*cruciger* Kieffer 1922:69. Syntype males; Philippines: Mindanao, Butan; Luzon, Laguna, Mt. Maquiling (Mus. ?).

*antennalis* Kieffer 1922:71. (*cruciger* var.). Holotype male; Philippines: Luzon, Tayabas, Mt. Banahao (Mus. ?).

*gilbus* Kimsey. Oriental: Malaysia.

*gilbus* Kimsey 1986e:157. Holotype male; Malaysia: Pasoh Forest Res., Negri Sembilan (GAINESVILLE-AEI).\*

*japonicus* Kimsey. Oriental: Japan.

*japonicus* Kimsey 1986e:158. Holotype female; Japan: Kyoto (GAINESVILLE-AEI).\*

---

### *Colocar* Krombein (Fig. 28)

*Colocar* Krombein 1957:195. Type: *Colocar alticola* Krombein 1957:196. Orig. desig.

### Generic diagnosis

Malar space with vertical sulcus; occipital carina absent; scapal basin flattened, eye encircled by carina, covered with short sparse setulae; male flagellum elongate and cylindrical; pronotum strongly convex, with short medial groove posteriorly, posterior-

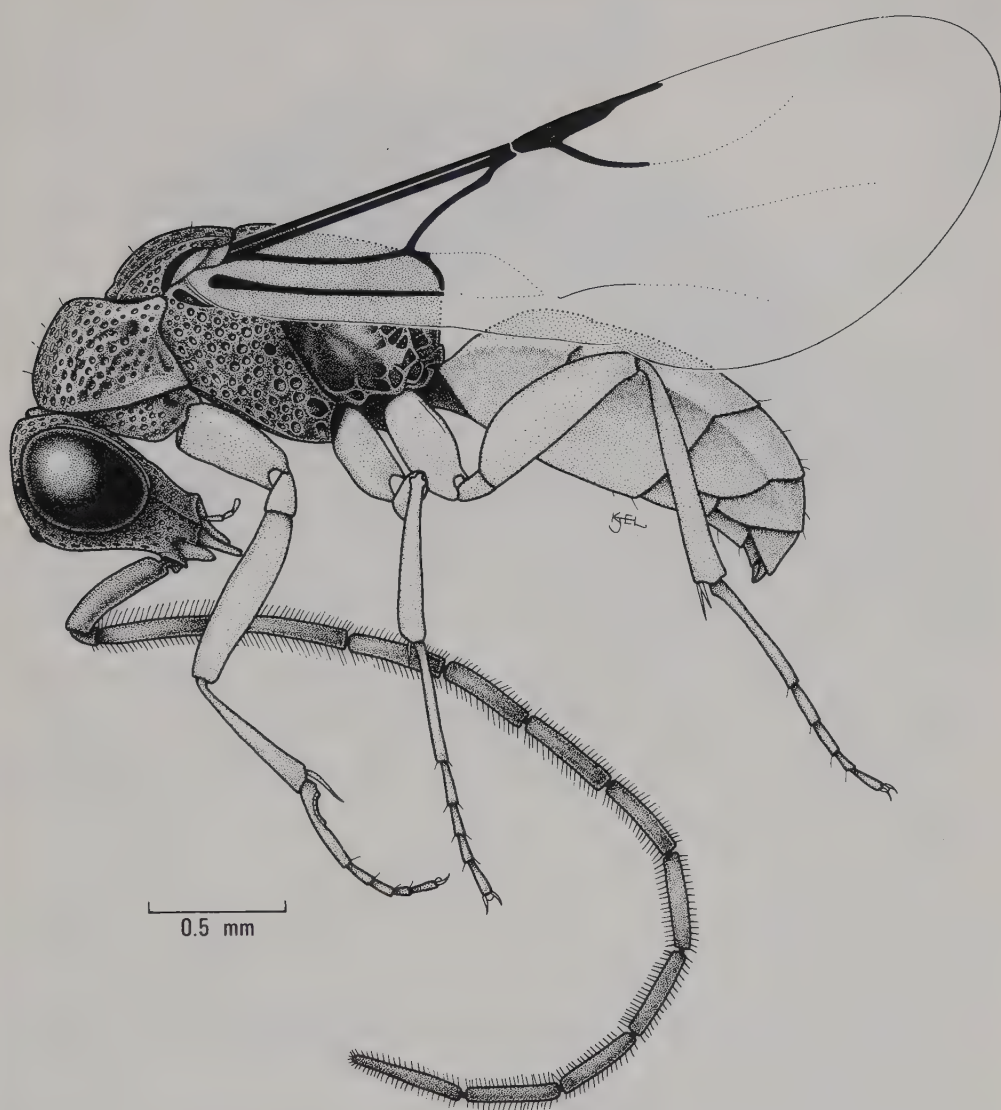


Fig. 28. *Colocar alticola*, male.

ly thickened, and abruptly declivitous, 0.5 times combined lengths of scutum, scutellum, and metanotum; scutum with deep notauli, parapsides indicated by lines; mesopleuron without scrobal sulcus or omaulus; metanotum about as long as scutellum; male fore wing with Rs extended by evenly curved dark streak, medial vein arising before cu-a, R1 not indicated, stigma large and broad; propodeum with long dorsal

surface rounded to steep posterior declivity, lateral angle faint or absent; tarsal claws edentate.

Female unknown.

### Hosts

Unknown.

### Distribution

Members of this genus have been collected in the Philippines.

### Discussion

These are relatively small (3–4 mm), delicate, pale wasps. *Colocar* is known only from males. Diagnostic features are: pronotum strongly convex and sharply declivitous posteriorly; propodeum with long dorsal surface rounded to steep posterior declivity, with lateral angle; malar sulcus present; occipital carina absent; and eye encircled by a carina. The bulging and posteriorly declivitous pronotum suggests a relationship with *Exova* and *Exopapua*. However, these genera are only known from females, which makes determination of affinities difficult. In addition, the unusually long male flagellum is similar to that of *Indothrix*.

Species distinctions are based on differences in punctuation, facial dimensions, pronotal length, colour, and length of the male antenna. In *alticola* the antenna is 1.4 times as long as the body, as opposed to 1.1 times as long in *myrmecophila*. In addition, *myrmecophila* lacks metallic tints and has pale red legs. *Colocar* was discussed and illustrated by Krombein (1957).

### Checklist of *Colocar*

---

*alticola* Krombein. Oriental: Philippines.

*alticola* Krombein 1957:196. Holotype male; Philippines: Mindoro, Hong, Mt. Halcon (WASHINGTON).\*\*

*myrmecophila* (Kieffer). Oriental: Philippines.

*myrmecophila* (Kieffer) 1922:68. (*Cladobethylus*). Holotype male; Philippines: Mindanao, Butan (Mus. ?).

---

### *Duckeia* Costa Lima (Fig. 29)

*Duckeia* Costa Lima 1936:174. Type: *Duckeia cyanea* Costa Lima 1936:175. Monotypic and orig. desig.



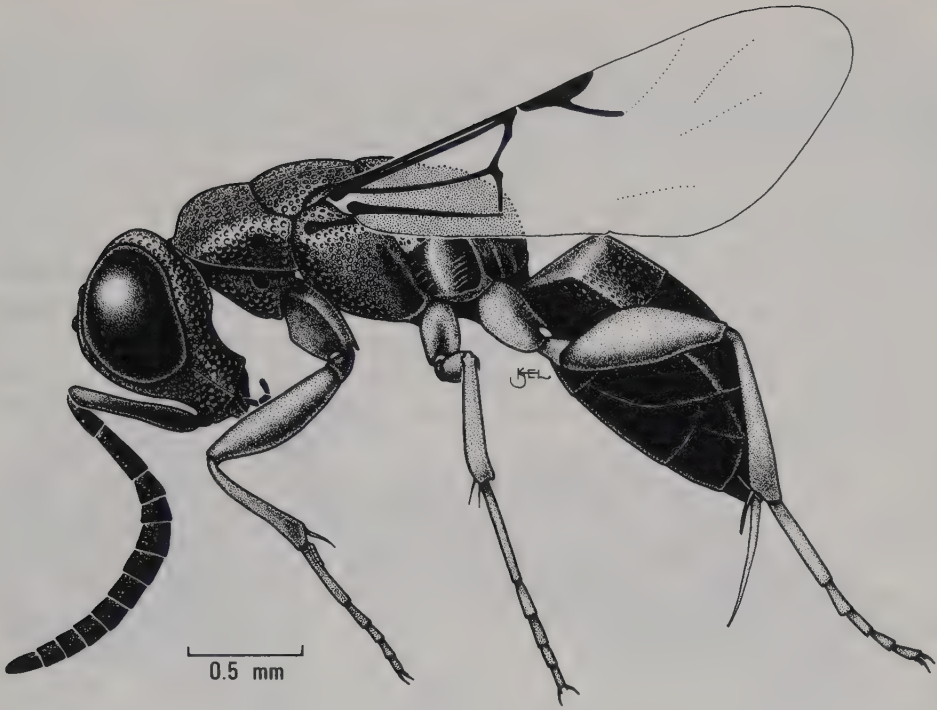


Fig. 29. *Duceia gracile*, female.

### Generic diagnosis

Malar space 0.6 times eye height, with short vertical sulcus or sulcus absent; occipital carina absent; eyes without obvious setulae; clypeus thickened apically; flagellum slender and somewhat fusiform in both sexes; entire body, including abdomen coarsely punctate; pronotum strongly convex, with deep anteromedial pit, smaller posteromedial one and one before lateral lobe, 0.4–0.5 times as long as combined lengths of scutum, scutellum, and metanotum; scutum with or without notauli and with parapsides; mesopleuron with short scrobal sulcus and without omaulus; metanotum narrow 0.3 times as long as scutellum, without medial enclosure or disk; propodeum rounded laterally and posteriorly without lateral angles; both sexes fully winged; fore wing Rs extended by evenly curved dark streak, medial vein arising before cu-a, R1 not clearly indicated, stigma short and broad, apically rounded; hind coxa without dorsobasal carina; tarsal claws with small medial tooth; T-I with transverse carina across top of anterior declivity.

### Hosts

*Duceia cyanea* was reared in Brazil by Costa Lima (1936) from the eggs of the walking stick, *Prisopus obrtmanni* (Lichtenstein).

## Distribution

*Duckeia* is known from tropical South America east of the Andes. However, two specimens (*vagabunda*) have been seen from quarantine material, apparently from Mexico.

## Discussion

The bright blue colour and coarse punctation give *Duckeia* a superficial resemblance to *Anachrysis*. However, *Duckeia* is probably more closely related to *Amisega*, having an unmodified male mandible, laterally rounded propodeum, flagellum slender and slightly fusiform in both sexes, and mesopleuron without omaulus. The coarse punctation and long malar space will immediately separate *Duckeia* from *Amisega*, or any other genus in the Americas.

There is very little sexual dimorphism in this genus. Both sexes are fully winged. In addition, there is little difference in the shape of the flagellum or mandibles.

The three species in *Duckeia* are distinguished by differences in the facial dimensions and sculpturing, colour, and female flagellomeres. *Duckeia vagabunda* and *cyanea* are quite similar in size, shape, and general colour, with *cyanea* having a shorter malar space (less than 4 MOD), lobulate female flagellomeres, and the eye encircled by a strong carina. *Duckeia gracile* is very slender and faintly metallic, with a narrow face and sparsely punctate abdomen. *Duckeia* was discussed in detail and illustrated by Costa Lima (1936), Krombein (1957), and Kimsey (1987c).

## Checklist of *Duckeia*

---

*cyanea* Costa Lima. Neotropical: se Brazil.

*cyanea* Costa Lima 1936:175. Holotype female; Brazil: Rio de Janeiro (RIO DE JANEIRO).\*\*

*gracilis* Kimsey. Neotropical: Brazil.

*gracilis* Kimsey 1987c:74. Holotype female; Brazil: Represa Rio Grande, Guanabara (OT-TAWA).\*

*vagabunda* Kimsey. Neotropical: Mexico.

*vagabunda* Kimsey 1987c:75. Holotype female; Mexico (WASHINGTON).\*

---

## *Exopapua* Krombein (Fig. 30)

*Exopapua* Krombein 1957:182. Type: *Exopapua nupela* Krombein 1957:183. Monotypic and orig. desig.

## Generic diagnosis

Occipital carina absent; malar space with vertical sulcus; scapal basin short, cross-

ridged; female flagellum short and fusiform, flattened on one surface; pronotum 1.2 times as long as combined lengths of scutum, scutellum, and metanotum; scutum without notauli or parapsides; mesopleuron without scrobal sulcus or omaulus; metanotum 0.9–1.0 times scutellar length, without medial enclosure or disk; female strongly brachypterous, tegula and wing pads present; propodeum with well-developed dorsal surface broadly rounding to posterior surface, produced posterolaterally into two large spikes and convex between; hind coxa without carina; abdomen strongly flattened; hind tarsal claw with large medial tooth.

Male unknown.

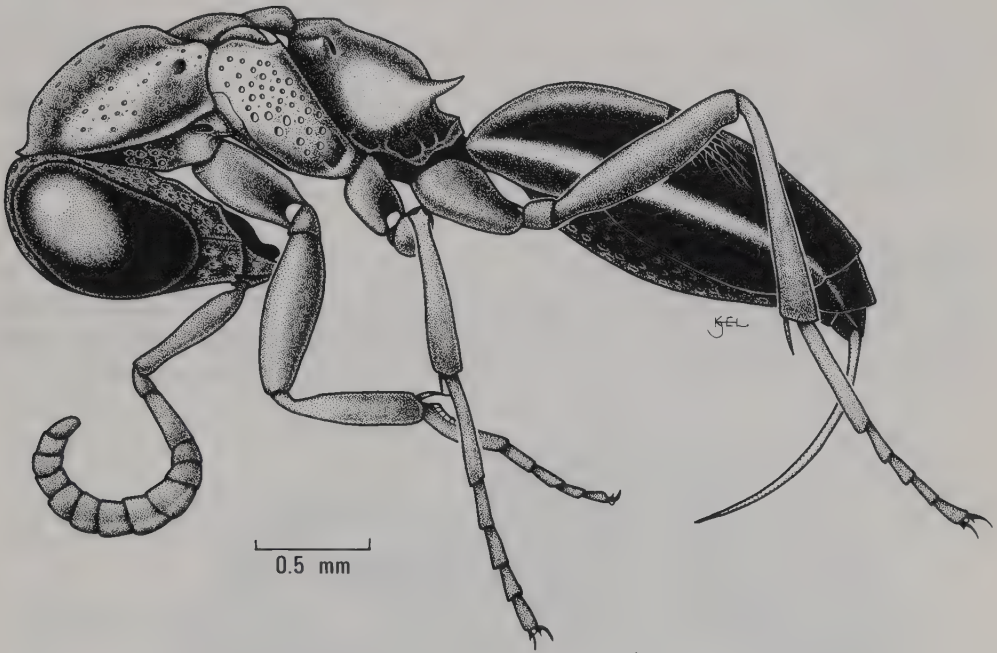


Fig. 30. *Exopapua nupela*, female.

### Host

Unknown.

### Distribution

The single known species, *nupela*, occurs in New Guinea.

### Discussion

*Exopapua* is another group known only from females. It can be readily distinguished by the strongly elevated and elongate pronotum. Other diagnostic features are the

strongly flattened abdomen, propodeum with acute, prominent lateral teeth, and gently curved medially, female flagellum short, fusiform, and flattened on one side, and tarsal claw dentate. *Exopapua nupela* has two large triangular patches of dense appressed setae on T-II and a metallic green scutellum. Krombein (1957) discussed and illustrated this genus.

### Checklist of *Exopapua*

---

*nupela* Krombein. Oriental: Papua New Guinea.

*nupela* Krombein 1957:183. Holotype female; Papua New Guinea: Maffin Bay (SAN FRANCISCO).\*\*

---

### *Exova* Riek (Fig. 31)

*Exova* Riek 1955:129. Type: *Exova tetraspina* Riek 1955:129.

Monotypic and orig. desig.

### Generic diagnosis

Malar space with vertical sulcus; occipital carina complete and well developed; female flagellum short, fusiform, and flattened on one surface; pronotum strongly convex and 0.6–0.8 times as long as combined lengths of scutum, scutellum, and metanotum,

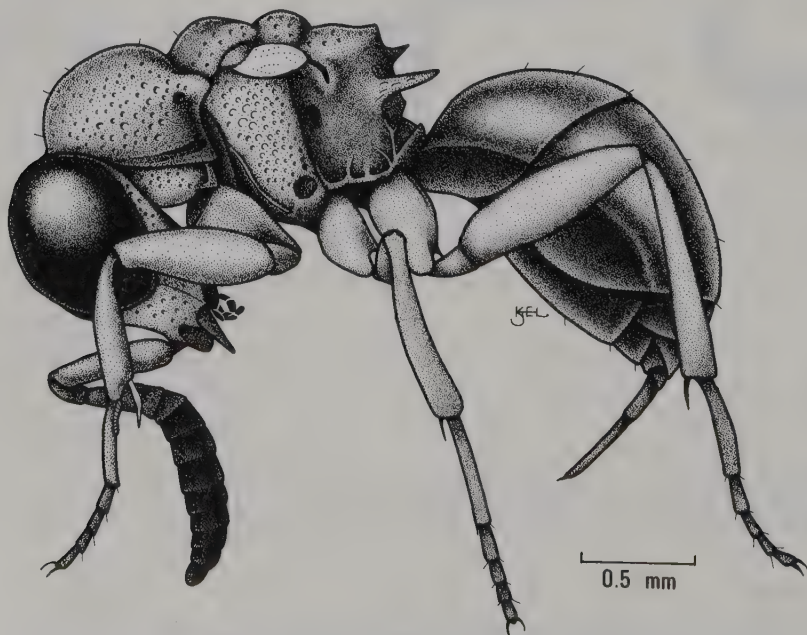


Fig. 31. *Exova tetraspina*, female.



with posteromedial groove and lateral pit; scutum without parapsides, with notauli; mesopleuron without scrobal sulcus or omaulus; metanotum without medial disk or enclosure, 1.2 times scutellar length; female strongly brachypterous, tegulae and wing pads present and visible; tarsal claws dentate; propodeal dorsal surface short, particularly medially, posterior surface abruptly declivitous and perpendicular to dorsal surface, posterior surface with four acute dorsal teeth, outer pair as long as F-I, lateral propodeal angle long and acute.

Male unknown.

### Host

Unknown.

### Distribution

*Exova* has been recorded from Queensland, in north-western Australia.

### Discussion

*Exova* appears to be closely related to the other Australian genus *Myrmecomimesis*. Females of both genera are strongly brachypterous. In both, the body is non-metallic, the propodeum has a short dorsal surface and is abruptly declivitous posteriorly, the pronotum has a posteromedial groove, and the scutum has parapsides. As with other flightless Old World forms the metanotum is elongate and almost indistinguishably fused to the propodeum. *Exova* can be distinguished from *Myrmecomimesis* by the long, spike-like propodeal angle and two sharp erect submedial propodeal teeth, longer and more strongly convex pronotum, and genal sulcus. Krombein (1957) reviewed and illustrated this genus.

### Checklist of *Exova*

---

*tetraspina* Riek. Australian: n Australia.

*tetraspina* Riek 1955:129. Holotype female; Australia: Queensland, Mt. Tambourine (CANNIBERRA).\*\*

---

### *Imasega* Krombein (Fig. 32)

*Imasega* Krombein 1983a:41. Type: *Imasega rufithorax* Krombein 1983a:42. Monotypic and orig. desig.

### Generic diagnosis

Eyes with dense short erect setulae; scapal basin flattened and cross-ridged; occipital carina absent; malar space with vertical sulcus; clypeal apex thickened; male flagellum

long and slender, cylindrical; thorax usually red; pronotum with posteromedial groove and pit before lateral lobe, 0.5 times as long as combined lengths of scutum, scutellum, and metanotum, strongly convex; scutum with notauli and faint parapsides; mesopleuron without scrobal sulcus or omaulus; metanotum about as long as scutellum medially, with large triangular medial enclosure; propodeum with short dorsal surface and abrupt vertical posterior declivity, lateral tooth short and blunt; male fully winged; fore wing with R1 two-thirds as long as stigma or longer, Rs extended by evenly curved dark streak, medial vein arising before cu-a; tarsal claw with large medial tooth; hind coxa without dorsobasal carina.

Female unknown.

### Host

Unknown.

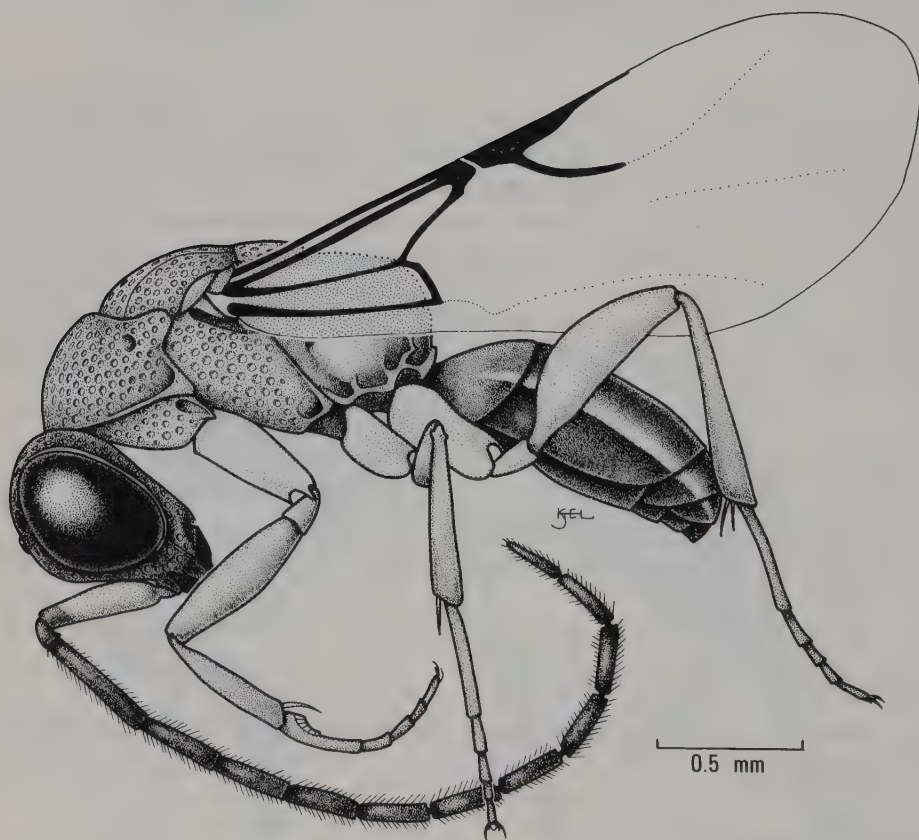


Fig. 32. *Imasega rufithorax*, male.

## Distribution

This genus is recorded from Sri Lanka.

## Discussion

*Imasega* is known only from males of *rufithorax*. This genus resembles *Kryptosega* in the absence of cross-ridging on the scapal basin, shape of the stigma + R1, and hind coxa without a dorsobasal carina. However, *Imasega* males tend to be larger than those of *Kryptosega*, and have the clypeal apex thickened, propodeum with blunt lateral angles, no occipital carina, and complete notauli. *Imasega rufithorax* is coloured with black, light red, and off-white. *Imasega* was described and discussed by Krombein (1983a), with only a single illustration of the face.

## Checklist of *Imasega*

---

*rufithorax* Krombein. Oriental: Sri Lanka.

*rufithorax* Krombein 1983a:42. Holotype male; Sri Lanka: Southern Prov., Galle Dist., Sinharaja Jungle, Kanneliya section (WASHINGTON).\*\*

---

## *Indothrix* Krombein (Fig. 33)

*Indothrix* Krombein 1957:198. Type: *Indothrix longicornis* Krombein 1957:199. Monotypic and orig. desig.

## Generic diagnosis

Occipital carina present and well developed; malar space with vertical sulcus; eyes with long setulae; scapal basin flat; male flagellum elongate and cylindrical, intermediate articles with small sub-basal tubercle; pronotum moderately convex, with short posteromedial groove and pit before lateral lobe, 0.9–1.0 times combined lengths of scutum, scutellum, and metanotum; mesopleuron without scrobal sulcus or omaulus; scutum with notauli and parapsides; metanotum slightly longer than scutellum, with large triangular medial enclosure; propodeum with long dorsal surface, rounded to posterior surface, lateral angle blunt and short; hind coxa without dorsobasal carina; tarsal claws with small perpendicular sub-basal tooth; male fully winged; fore wing stigma broad, medial vein arising before cu-a, R1 0.5–0.6 times as long as stigma, Rs extended by evenly curved dark streak; S-II deep emarginate apicomediaally.

Female unknown.

## Host

Unknown.

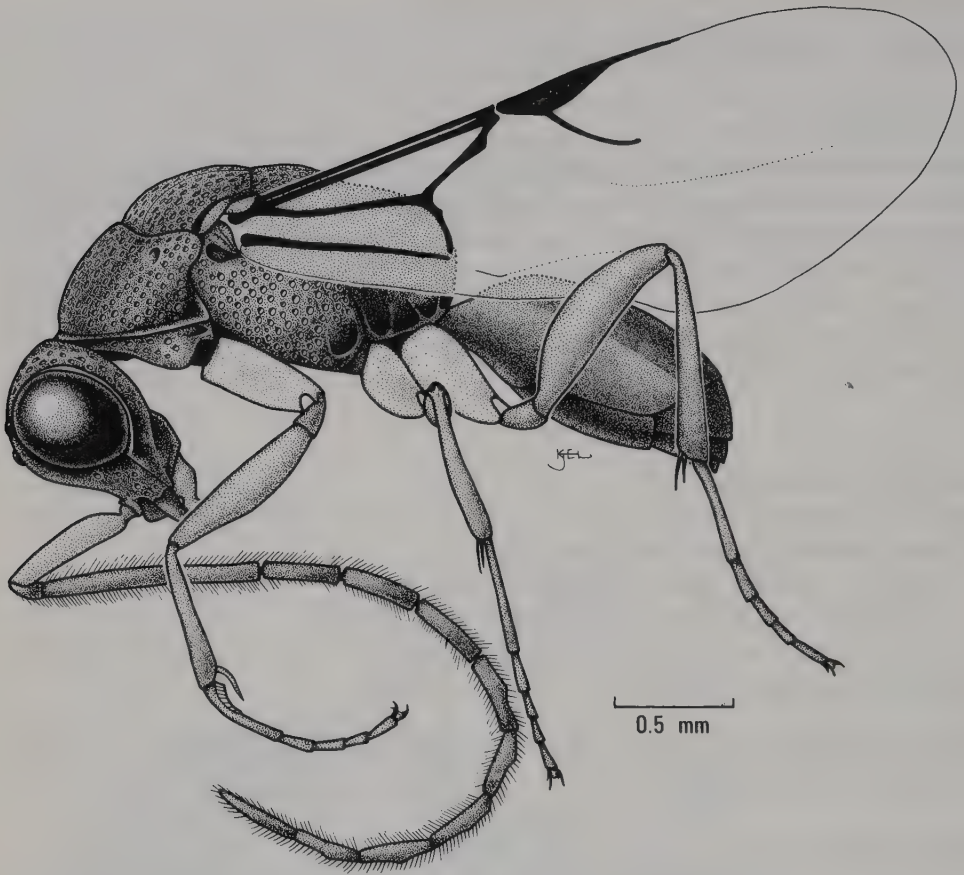


Fig. 33. *Indothrix wijesinbei*, male.

## Distribution

*Indothrix* has been collected in southern India and Sri Lanka.

## Discussion

As with so many of the Oriental amisegines, *Indothrix* is known only from males. One of the most distinctive features of this genus is the wing venation. The stigma is large and rounded posteriorly, with R1 long and clearly delimited, much like that of *Bupon*. Other diagnostic features are the presence of a malar sulcus and occipital carina, mesopleuron without sulci or carinae, propodeum with long dorsal surface and blunt lateral angles, and tarsal claws dentate.

The two described species can be distinguished by the sculpture of the scapal basin, relative proportions of the flagellomeres, and the shape of the apical margin of S-II.



In *longicornis* the scapal basin is cross-ridged, F-I is about as long as F-II + F-III, and S-III is emarginate posteromedially. The converse is true in *wijesinhei*, the scapal basin is smooth, F-I is 0.8 times as long as F-II + F-III, and the posterior margin of S-III is straight. *Indothrix* was discussed, reviewed, and illustrated by Krombein (1957, 1983a).

### Checklist of *Indothrix*

---

*longicornis* Krombein. Oriental: s India.

*longicornis* Krombein 1957:199. Holotype male; India: e Kodaikanal, Pulney Hills (WASHINGTON).

*wijesinhei* Krombein. Oriental: Sri Lanka.

*wijesinhei* Krombein 1983a:31. Holotype male; Sri Lanka: Central Prov., Nuwara Eliya Dist., Hakgala Nat. Res. (WASHINGTON).\*\*

---

### *Isegama* Krombein (Fig. 34)

*Isegama* Krombein 1983a:41. Type: *Isegama meaculpa* Krombein 1983a:23. Orig. desig.

### Generic diagnosis

Lower face with subocular surface strongly converging; occipital carina and malar sulcus present; scapal basin shallow, with weak cross-ridging; flagellum short and stout in both sexes, flattened on inner surface, F-I twice as long as broad, adjacent segments as long as broad; pronotum about as long as scutum along mid-line, with medial groove and pit before lateral lobe; scutum with notauli and without parapsides; mesopleuron with omaulus and long parallel-sided scrobal sulcus; metanotum at least two-thirds as long as scutellum, with distinct punctate triangular enclosure; propodeum rounded laterally and posteriorly, with relatively short dorsal surface; both sexes fully winged, fore wing Rs extended by evenly curved dark streak, R1 not clearly differentiated from stigma, which is long and slender, medial vein arising at cu-a; little sexual dimorphism; T-III with small, dense punctures, less than 1 PD apart; tarsal claw edentate; hind coxa with dorsobasal carina.

### Hosts

Unknown.

### Distribution

Thus far all individuals of *Isegama* have been collected in Sri Lanka and Malaysia.

### Discussion

This is one of two Oriental genera which show almost no sexual dimorphism and both

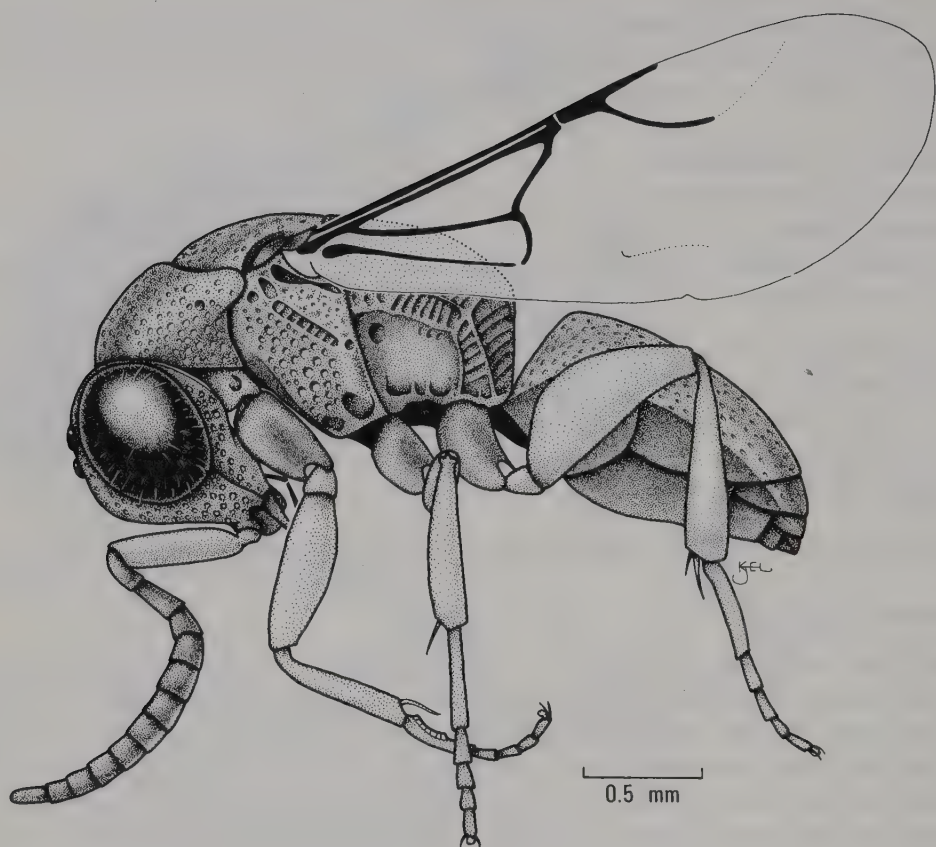


Fig. 34. *Isegama meaculpa*, male.

sexes are fully winged. The flagellum is short, stout, and flattened on one side. *Perissosega*, the other genus with little dimorphism, lacks the omaulus, and scrobal sulcus, and evenly curved Rs vein characteristic of *Isegama*. Other diagnostic features of *Isegama* are the long slender stigma, edentate tarsal claw, and propodeum laterally and posteriorly rounded, with a short dorsal surface.

There are three listed species in this genus. Distinctions are based on head dimensions, colour, and thoracic sculpturing. *Isegama malaysiana* and *meaculpa* both have bulging eyes and a strongly converging lower face. The legs and scape of *aridula* are light red, *meaculpa* darker, and *malaysiae* yellow.

*Isegama* was discussed by Krombein (1983a). Species distinctions and a figure were also given by Kimsey (1986e).

## Checklist of *Isegama*

---

*aridula* (Krombein). Oriental: Sri Lanka.

*aridula* (Krombein) 1980:255. (*Gladobethylus*). Holotype female; Sri Lanka: Eastern Prov., Amparai Dist., Ekgal Aru Sanct. (WASHINGTON).

*malaysiana* Kimsey. Oriental: Malaysia.

*malaysiana* Kimsey 1986e:159. Holotype female; Malaysia: Pasoh Forest Res., Negri Sembilan (GAINESVILLE-AEI).\*

*meaculpa* Krombein. Oriental: Sri Lanka.

*meaculpa* Krombein 1983a:24. Holotype female; Sri Lanka: Uva Prov., Monaragala Dist., Angunakolapelessa (WASHINGTON).\*\*

---

## *Kryptosega* Kimsey (Figs 16*b* and 35)

*Kryptosega* Kimsey 1986e:160. Type: *Kryptosega anomala* Kimsey 1986e:162. Orig. desig.

## Generic diagnosis

Scapal basin shallow, with some cross-ridging; malar space with vertical sulcus; occipital carina well developed, at least dorsally; male flagellum elongate and cylindrical; pronotum with shallow, often faint, posteromedial groove and pit before lateral lobe, 0.8–0.9 times scutal length; mesopleuron with scrobal sulcus faintly indicated by broad and dorsally carinate groove, or obsolescent, without omaulus; scutum with notauli deep posteriorly and obsolescent anteriorly, parapsides present; male fully winged, fore wing stigma broad and elongate, without indication of R1, Rs extended by evenly curved dark streak, medial vein arising before cu-a; metanotum 0.8 times as long as scutellum, with poorly defined punctate medial enclosure; propodeum rounded posteriorly and laterally, with dorsal surface relatively long; hind coxa without dorsobasal carina; tarsal claw with large medial tooth.

Female unknown.

## Hosts

Unknown.

## Distribution

Both species in this genus are recorded from Papua New Guinea.

## Discussion

This is another genus in which females are unknown; they are probably small, wingless, and inhabit cryptic situations. Males are fairly nondescript and are recognized by a

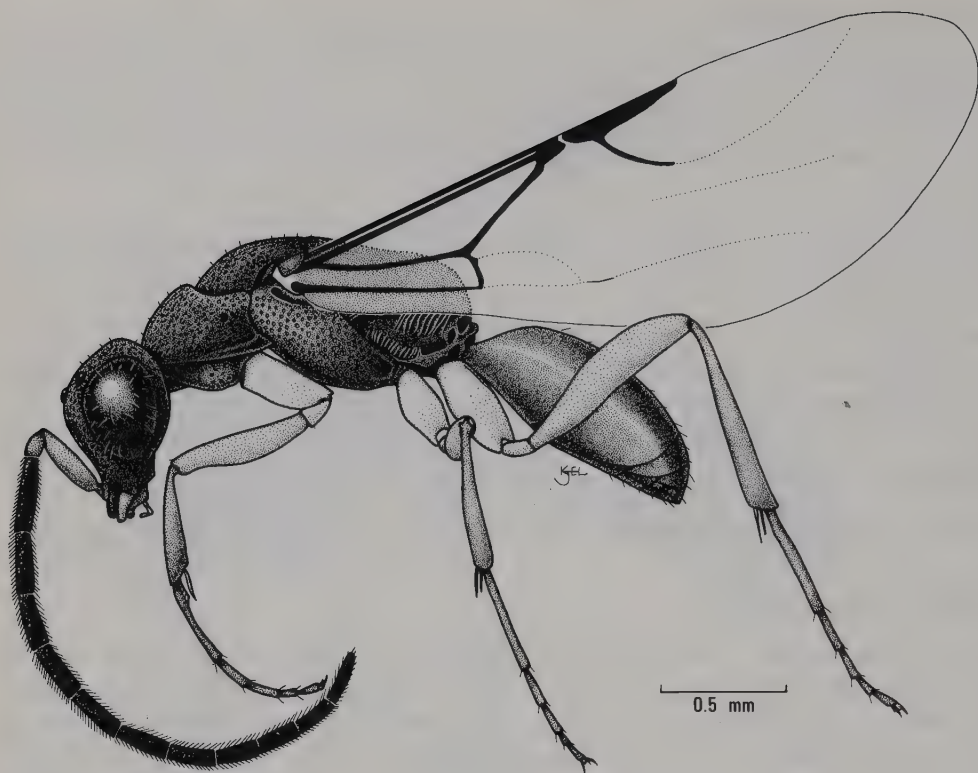


Fig. 35. *Kryptosega anomala*, male.

combination of characteristics: malar sulcus and occipital carina present, mesopleuron with at least a faint indication of a scrobal sulcus and no omaulus, propodeum laterally and posteriorly broadly rounded with a long dorsal surface, hind coxa without dorsobasal carina, and tarsal claw with large medial tooth. The long and broadly rounded propodeum is one of the more distinctive features of *Kryptosega*. In addition, the scapal basin is smooth and impunctate without distinct cross-ridging.

The two species are distinguished by the long malar and subantennal spaces of *anomala* and bronze colour and shiny integument of *kaindeana*. Kimsey (1986e) gave descriptions and illustrations of *Kryptosega*.

### Checklist of *Kryptosega*

*anomala* Kimsey. Oriental: Papua New Guinea.

*anomala* Kimsey 1986e:162. Holotype male; New Guinea: Mt. Kainde (GAINESVILLE-AEI).\*

*kaindeana* Kimsey. Oriental: Papua New Guinea.



*kaindeana* Kimsey 1986e:162. Holotype male; New Guinea: Mt. Kainde (GAINESVILLE-AEI).\*

### *Leptosega* Krombein (Fig. 36)

*Leptosega* Krombein 1984:211. Type: *Leptosega gracilis* Krombein 1984:212. Monotypic and orig. desig.

### Generic diagnosis

Scapal basin shallow and closely cross-ridged, with medial ridge; vertical malar sulcus absent; occipital carina well developed; flagellum elongate and fusiform, intermediate flagellomeres flattened on one side, slightly longer than broad in both sexes; pronotum strongly convex, 1.3 times as long as combined lengths of scutum, scutellum, and metanotum; scutum without parapsides or notauli, lateral lobe completely covering regula and wing pads if present; mesopleuron coarsely sculptured, without evident scrobe; metanotum 2.6 times as long as scutellum, with medial pair of decumbent teeth; propodeum rounded laterally and posteriorly to posterior surface; male wingless; coxae closely and transversely microridged; tarsal claws edentate; abdomen petiolate, petiole one-sixth as long as first segment.

Female unknown.

### Hosts

Unknown.

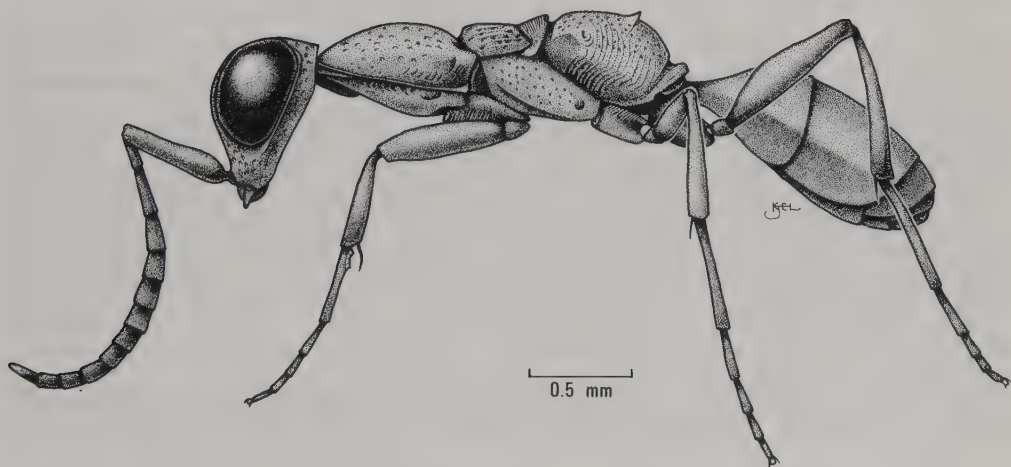


Fig. 36. *Leptosega gracilis*, male.

## Distribution

*Leptosega* occurs in South Africa.

## Discussion

Only two amisegine genera have a petiolate abdomen, *Leptosega* and *Afrosegia*. The petiole is considerably shorter in *Leptosega* than in *Afrosegia*. As in the majority of African genera, males are wingless. Although the female of *Leptosega* is as yet unknown, it is also probably wingless. Additional diagnostic features that distinguish *Leptosega* from *Afrosegia* are the absence of macrochaetae on the head and thorax, pronotum evenly rounded, metanotum elongate with two posteromedial decumbent teeth, and propodeum declivitous at the metanotal apex. Krombein (1984) discussed and illustrated *Leptosega*.

## Checklist of *Leptosega*

---

*gracilis* Krombein. Afrotropical: South Africa (Zululand).

*gracilis* Krombein 1984:212. Holotype male; South Africa: Zululand, Gingindhlovu (LONDON).\*

---

## *Magdaliium* Kimsey (Fig. 37)

*Magdaliium* Kimsey 1986e:163. Type: *Magdaliium cuneifacialis* Kimsey 1986e:164. Monobasic and orig. desig.

## Generic diagnosis

Occipital carina absent; eyes with short setulae; vertex with impunctate medial stripe extending from mid ocellus to occiput; scapal basin shallow and coarsely cross-ridged; vertical malar sulcus present; male flagellum relatively broad; F-V-IV bulging medially; female flagellum short and broad, flattened on one side; pronotum long and flat, with posteromedial and lateral pits, as long as scutum + scutellum; mesopleuron with short omaulus, and scrobal sulcus long and parallel-sided; scutum with parapsides faint, notauli deep and straight; metanotum as long as scutellum, medial enclosure distinctly sculptured; fore wing stigma long and slender, R1 not differentiated, Rs extended by evenly curved dark streak, medial vein arising at cu-a; propodeum with long dorsal surface and abruptly declivitous posteriorly, lateral angles short and blunt; hind coxa with dorsobasal carina; tarsal claw with large submedial tooth; terga sharp-edged laterally and densely punctate except T-I-II with impunctate medial welt.

## Hosts

Unknown.

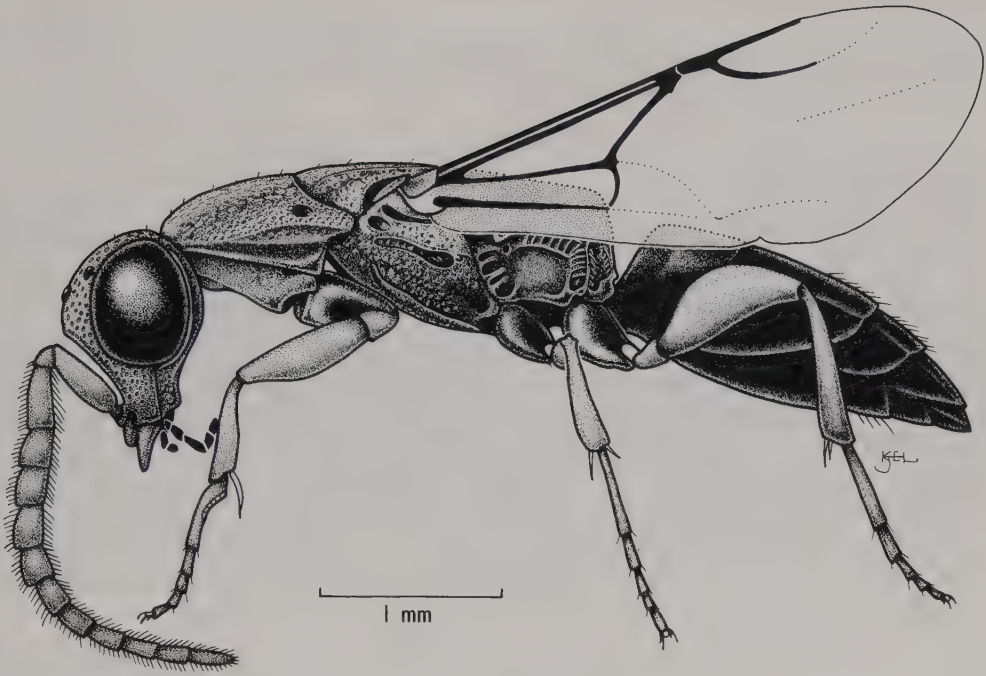


Fig. 37. *Magdalium cuneifacialis*, male.

## Distribution

*Magdalium* is known only from Malaysia.

## Discussion

These are large, cylindrical amisegines. Diagnostic features include the long pronotum, no occipital carina, malar sulcus present, odd, dilated male flagellomeres, impunctate stripe on vertex, and mesopleuron with omaulus and scrobal sulcus. The sculpture of the mesopleuron, short, broad male flagellum, malar sulcus, and dentate tarsal claw indicate a close relationship with *Isegama*. The only other genus with a stripe or welt on the vertex is *Cladobethylus*. *Magdalium* was discussed and illustrated by Kimsey (1986e).

## Checklist of *Magdalium*

---

*cuneifacialis* Kimsey. Oriental: Malaysia.

*cuneifacialis* Kimsey 1986e:164. Holotype male; Malaysia: Negri Sembilan, Pasoh Forest Res. (GAINESVILLE-AEI).\*

---

*Mahinda* Krombein (Fig. 38)

*Mahinda* Krombein 1983a:28. Type: *Mahinda saltator* Krombein 1983a:29. Monobasic and orig. desig.

**Generic diagnosis**

Head without occipital carina; eyes with dense long erect setulae; vertical malar sulcus present; scapal basin short and densely cross-ridged; male flagellum elongate, filiform, and cylindrical; female flagellum short and fusiform, flattened on one surface; pronotum subequal in length to scutum, with short posteromedial groove and pit before lateral lobe; scutum with faint parapsides and well-developed notauli; mesopleuron without omaulus or scrobal sulcus; male fully winged, fore wing Rs extended by dark streak at an abrupt angle, medial vein arising before cu-a, R1 not clearly indicated, stigma greatly elongate and slender; female strongly brachypterous; metanotum subequal in length to scutellum along mid-line, with punctate medial enclosure; propodeum with long acute lateral angles in females or obtuse angles in males, and abruptly declivitous posterior surface; hind coxa with dorsobasal carina; vestiture of mid and hind femora, tibiae, and abdomen short and decumbent; abdomen dull and densely micropunctate; tarsal claw with large medial tooth.

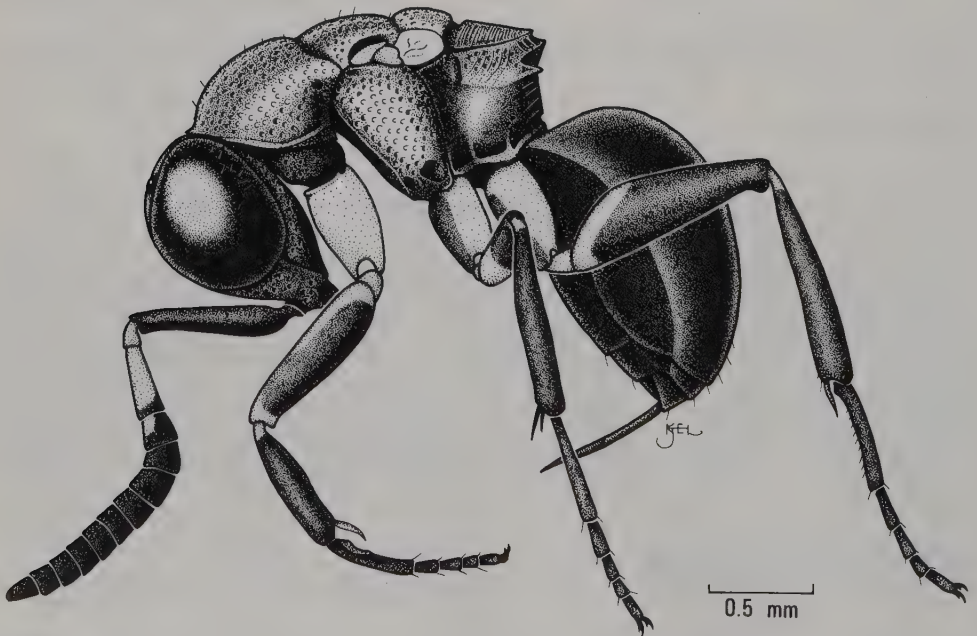


Fig. 38. *Mahinda saltator*, female.



## Hosts

Unknown.

## Distribution

*Mahinda* occurs in Sri Lanka.

## Discussion

Both males and females are known for this Oriental genus. The male is fully winged, females are strongly brachypterous. Female *Mahinda* have the lateral propodeal angles sharp and spine-like, and somewhat resemble *Exopapua* females. They differ from female *Exopapua* in having a strongly convex pronotum, short metanotum, and gradually sloping propodeum. In male *Mahinda* the lateral propodeal angles are not spine-like, but short and somewhat obtuse. Other diagnostic features are the lack of an occipital carina, or any carinae or sulci on the mesopleuron, long slender stigma + R1, and presence of a malar sulcus. This genus was reviewed and illustrated by Krombein (1983a).

## Checklist of *Mahinda*

---

*saltator* Krombein. Oriental: Sri Lanka.

*saltator* Krombein 1983a:29. Holotype female; Sri Lanka: Sabaragamuwa Prov., Kegalla Dist., Kitulgala, Bandarakele Jungle (WASHINGTON).\*\*

---

## *Microsega* Krombein (Fig. 39)

*Microsega* Krombein 1960:31. Type: *Microsega bella* Krombein 1960:32. Monotypic and orig. desig.

## Generic diagnosis

Face with broad zone of dense cross-ridging; clypeus narrow but apically thickened; malar space without vertical sulcus; occipital carina absent; flagellum slender and fusiform in both sexes; pronotum elevated, as long as combined lengths of scutum and scutellum, with lateral lobes reaching tegula and vertical groove extending ventrally from lateral lobe; mesopleuron without scrobal sulcus or omaulus; metanotum reduced to narrow, sunken transverse sclerite without medial enclosure or disk; propodeum without distinct dorsal surface, rounded laterally and posteriorly; both sexes strongly brachypterous; tarsal claw with small perpendicular tooth; arolium large, as long as tarsal claws; hind coxa without dorsobasal carina.

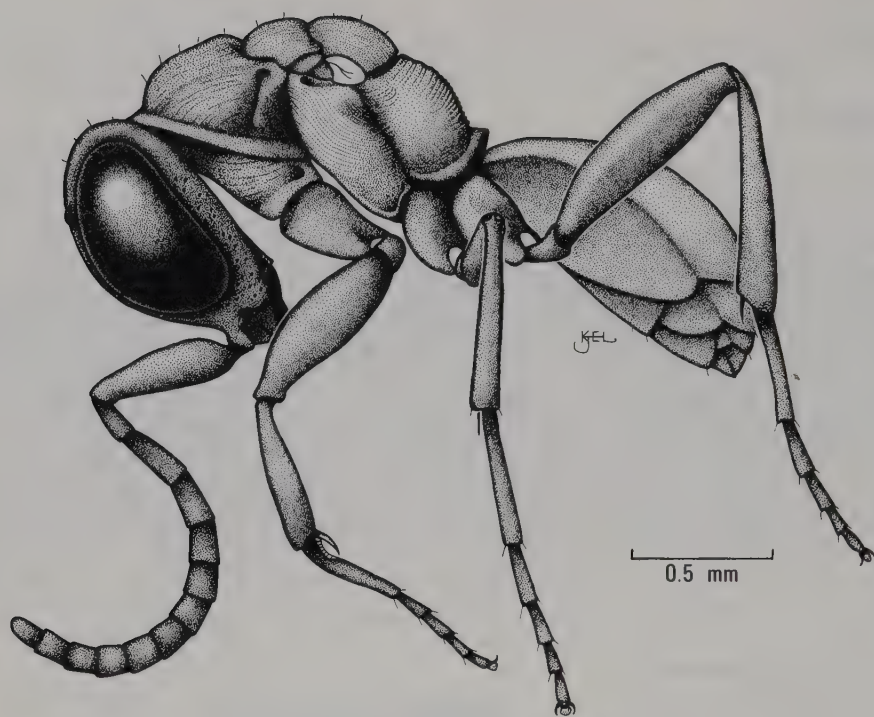


Fig. 39. *Microsega bella*, male.

## Hosts

Unknown.

## Distribution

*Microsega bella* is known from south central United States, in Texas and Oklahoma.

## Discussion

This genus is quite different from other American amisegines. Both sexes are strongly brachypterous and there is little sexual dimorphism. In addition, there is no malar sulcus and a highly reduced metanotum. Despite these specializations, *Microsega* is clearly related to *Amisega*. Both have the narrow scapal basin and frons, short malar space, laterally rounded propodeum, and mesopleuron without carinae or sulci. Another unusual feature of *bella* is the dense, fine cross-ridging on the thorax. *Microsega* was briefly discussed by Krombein (1957) and Bohart and Kimsey (1982).

## Checklist of *Microsega*

---

*bella* Krombein. Nearctic: e USA.

*bella* Krombein 1960:32. Holotype female; USA: Texas, Cameron Co., Los Fresnos (WASHINGTON).\*

---

### *Myrmecomimesis* Dalla Torre (Fig. 40)

*Myrmecopsis* Walker 1866a:441. Type: *Myrmecopsis nigricans* Walker 1866a:441. Monotypic and desig. by Ashmead 1902. Nec Newman 1850.

*Myrmecomimesis* Dalla Torre 1897:87. Repl. name for *Myrmecopsis* Walker.

*Promesitius* Kieffer 1905:123. Type: *Promesitius flavicollis* Kieffer 1905:123. Monotypic and desig. by Riek 1955.

*Ootheres* Riek 1955:121. Type: *Promesitius coeruleus* Kieffer 1907b:290. Orig. desig.

*Cresmophaga* Riek 1955:125. Type: *Cresmophaga bispinosa* Riek 1955:126. Orig. desig.

## Generic diagnosis

Scapal basin densely cross-ridged; eyes with obvious setulae; male flagellum broad and cylindrical, female short and fusiform; malar space with vertical sulcus; occipital carina present at least dorsally; pronotum convex with strong anterior declivity, subequal in length to scutum in males, about twice as long in females, with medial groove and pit before lateral lobe; mesopleuron without scrobal sulcus or omaulus; metanotum about as long as scutellum medially, with two decumbent posteromedial teeth and large coarsely punctate medial enclosure; propodeum with blunt lateral angle in males and acute one in females; females strongly brachypterous with tegula and wing pads; males fully winged, fore wing Rs extended by evenly curved streak toward costal margin, stigma small and tapering apically, medial vein arising before cu-a, R1 not clearly distinguished; hind coxa without dorsobasal carina; tarsal claw with small submedial tooth.

## Hosts

*Myrmecomimesis* have been reared from a variety of phasmatid genera. *Myrmecomimesis bispinosa*, *nigripedice*, *nigricans*, *rubrifemur*, and *semiglabra* were reared from eggs of *Didymuria* and *Podacanthus* (Riek 1955; Readshaw 1965), and *nigripedice* and *striata* from *Ctenomorpha* (Hadlington and Hoschke 1959; Heather 1965).

## Distribution

This genus occurs in Australia: Queensland, New South Wales, and Western Australia.

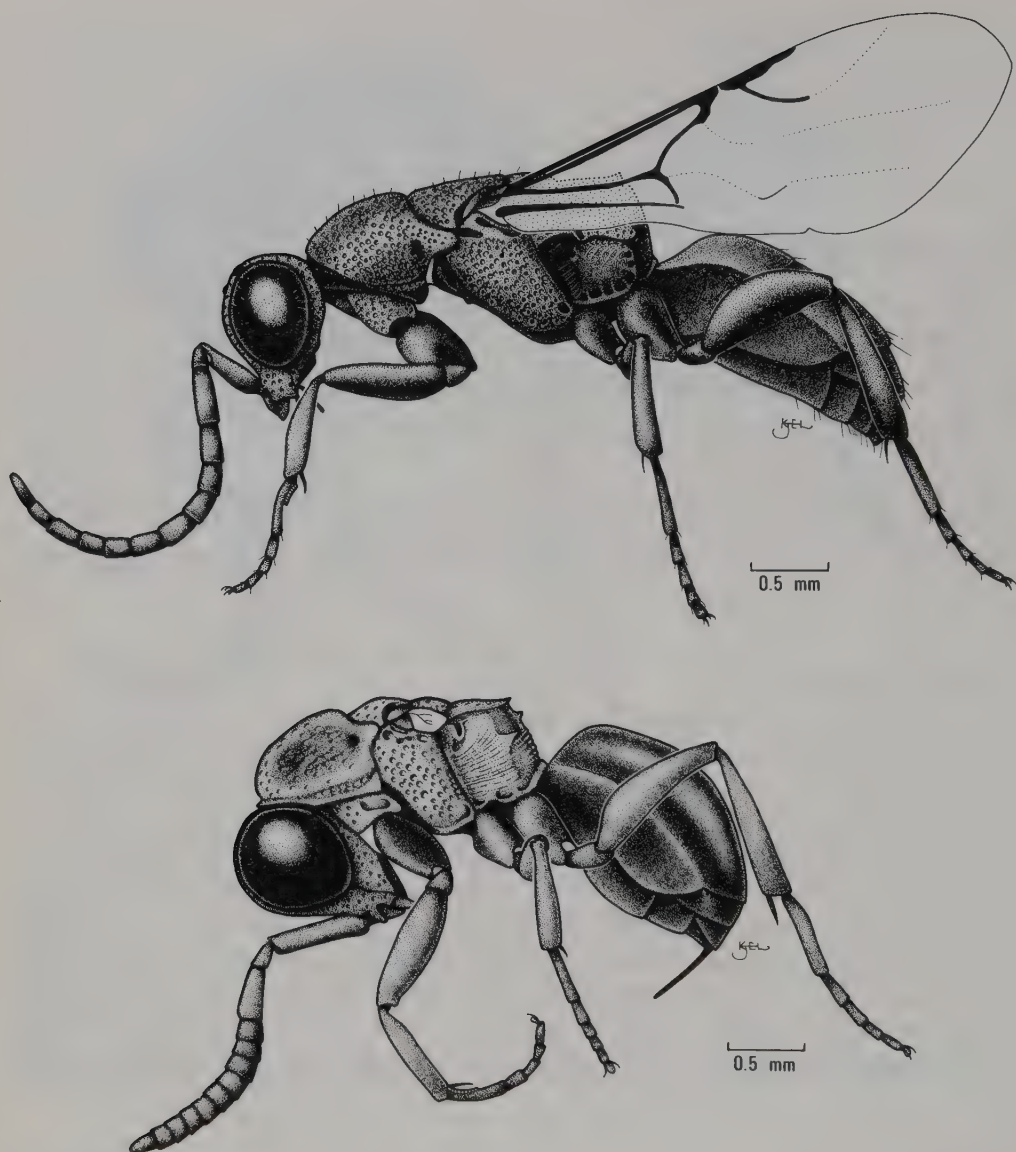


Fig. 40. *Myrmecomimesis*. (a) *nigrithorax*, male; and (b) *bispinosus*, female.

## Discussion

*Myrmecomimesis* is the largest of the Old World genera. There are 11 described species and probably a number of undescribed ones as well, particularly from northern Western Australia. The genus is badly in need of study. There has been no species-level revision



since Riek (1955). Riek's study is difficult to use, at least in part because he was confused about the number of genera involved. Krombein (1957) rectified the generic confusion and Riek's genera, *Ootheres* and *Cresmophaga*, became junior synonyms of *Myrmecomimesis*.

Males are fully winged in this genus and females are strongly brachypterous. Diagnostic features are: malar sulcus absent, occipital carina present at least dorsally, mesopleuron without carinae or sulci, metanotum with two decumbent apical teeth, propodeum without dorsal surface and abruptly declivitous at apex of the metanotum, and stigma slender and tapering apically.

*Myrmecomimesis* females can be distinguished from those of *Exova*, the other Australian genus, by the propodeum with only a short lateral tooth, pronotum weakly convex, and metapleuron + propodeum entirely or partly punctate or rugose.

Species distinctions are based on coloration, tergal punctuation, propodeal sculpture, and setation patterns. One species, *iridescens*, is iridescent green, blue, and purple. The other described species are primarily black with red and yellow markings, except *coeruleus*, which has a blue head. The thorax of *flavicollis* and *bimaculatus* is partly yellow to yellow-orange.

### Checklist of *Myrmecomimesis*

---

*bimaculatus* (Kieffer). Australian: n Australia (Queensland).

*bimaculatus* (Kieffer) 1907:291. (*Promesitius*). Holotype female; Australia: Queensland, Mackay (LONDON).\*

*bispinosus* (Riek). Australian: Australia (New South Wales).

*bispinosus* (Riek) 1955:126. (*Cresmophaga*) Holotype female; Australia: New South Wales, Jenolan Caves (CANBERRA).

*flavicollis* (Kieffer). Australian: n Australia (Queensland).

*flavicollis* (Kieffer) 1905:123. (*Promesitius*). Holotype female; Australia: Queensland, Cape York Penins., Somerset (GENOA).

*nigricans* (Walker). Australian: n Australia (Queensland).

*nigricans* (Walker) 1866a:441. (*Myrmecopsis*). Holotype female; (LONDON).\*

*coeruleus* (Kieffer) 1907:290. (*Promesitius*) Holotype female; Australia: Queensland, Mackay (LONDON).\*

*iridescens* (Riek) 1955:123. (*Ootheres*). Holotype female; Australia: Queensland, Gogano (CANBERRA).

*nigripedicel* (Riek). Australian: Australia (New South Wales).

*nigripedicel* (Riek) 1955:124. (*Ootheres*). Holotype female; Australia: New South Wales, Hassan's Walls (CANBERRA).

*nigrithorax* (Riek). Australian: Australia (New South Wales).

*nigrithorax* (Riek) 1955:124. (*Ootheres*). Holotype female; Australia: New South Wales, Pittwater (CANBERRA).

*punctaticeps* (Kieffer). Australian: n Australia (Queensland).

*punctaticeps* (Kieffer) 1907:291. (*Promesitius*). Holotype female; Australia: Queensland, Mackay (LONDON).\*

*rubrifemur* (Riek). Australian: Australia (New South Wales).

*rubrifemur* (Riek) 1955:128. (*Cresmophaga*). Holotype male; Australia: New South Wales, Hassan's Walls (CANBERRA).

*rugosinotus* (Riek). Australian: n Australia (Queensland).

*rugosinotus* (Riek) 1955:127. (*Cresmophaga*). Holotype female; Australia: Queensland, Gogango (CANBERRA).

*semigladius* (Riek). Australian: Australia (New South Wales).

*semigladius* (Riek) 1955:128. (*Cresmophaga*). Holotype female; Australia: New South Wales, Jenolan Caves (CANBERRA).

*striatus* (Riek). Australian: n Australia (Queensland).

*striatus* (Riek) 1955:127. (*Cresmophaga*). Holotype female; Australia: Queensland, Gogango (CANBERRA).

## *Nesogyne* Krombein (Fig. 41)

*Nesogyne* Krombein 1957:210. Type: *Nesogyne taino* Krombein 1957:211. Monotypic and orig. desig.

## Generic diagnosis

Occipital carina present only dorsally; ocelli tiny; eyes with short erect setulae; malar space with vertical sulcus; scapal basin smooth and indistinct; female flagellum fusiform; pronotum large, abruptly declivitous anteriorly, 1.4 times as long as scutum, with pit on lateral lobe, no anteromedial pit, and with faint transverse anterior carina; scutum with notauli and parapsides; mesopleuron with scrobal sulcus and omaulus; metanotum less than one-third as long as scutellum, with small ovoid medial disk; propodeum with long dorsal surface and abrupt posterior declivity, with dorsal and posterior enclosures, and strong dorsomedial carina, lateral tooth slender and digitate; female brachypterous, fore wing with costa, subcosta, medial vein, cu-a, and A1 veins; hind coxa with dorsobasal carina; tarsal claws with large perpendicular submedial tooth.

Male unknown.

## Host

Unknown.

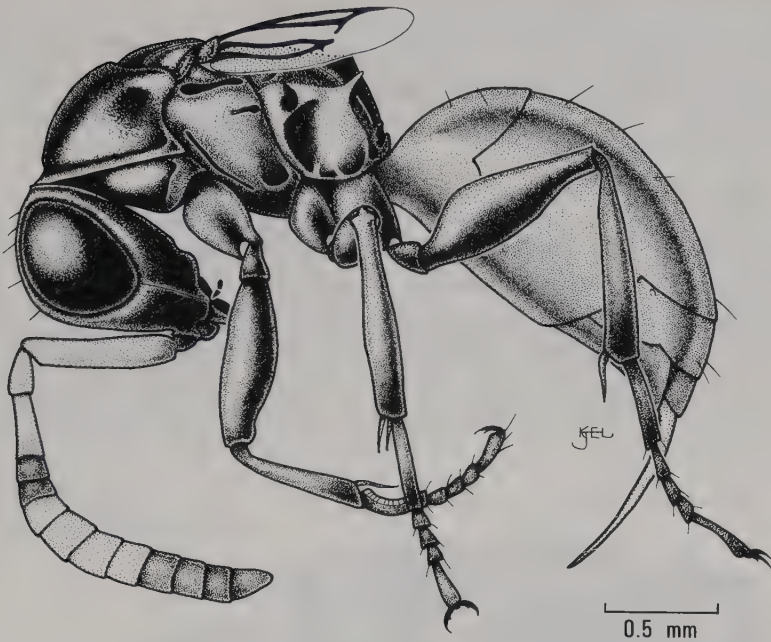


Fig. 41. *Nesogyne taino*, female.

## Distribution

*Nesogyne taino* has been collected only in the Dominican Republic.

## Discussion

The odd, short wings and reduced venation make *Nesogyne* (females at least) one of the more distinctive amisegine genera. It is most closely related to *Adelphe*, as both have an elongate malar space, mesopleuron with scrobal sulcus and omaulus, and propodeum with lateral angle slender and digitate. *Nesogyne* can be distinguished from *Adelphe* by the incomplete occipital carina, pronotum without a well-developed anterolateral carina, and brachypterous female wings. Male *Nesogyne* may be fully winged. This genus was discussed and illustrated by Krombein (1957).

## Checklist of *Nesogyne*

---

*taino* Krombein. Neotropical: Dominican Republic.

*taino* Krombein 1957:211. Holotype female; Dominican Rep.: Valle Nuevo, se Constanza (CAMBRIDGE).\*

---

*Obenbergerella* Strand (Figs 16a and 42)

*Alienus* Bridwell 1919:117. Type: *Alienus aenigmaticus* Bridwell 1919:117. Monotypic and desig. by Krombein 1957. Nec Handlirsch 1906.

*Obenbergerella* Strand 1929:25. Repl. name for *Alienus* Bridwell 1919.

**Generic diagnosis**

Malar space without vertical sulcus; scapal basin with numerous arched cross-ridges; female flagellum long filiform; pronotum medially 1.3 times scutal length; scutum with lateral lobe concealing tegula and wings, if present; mesopleuron with U- shaped omaulus and episternal sulcus; metanotum indistinguishable; propodeum laterally rounded, without dorsomedial surface; thoracic dorsum with small scattered punctures and fine shagreening; tarsal claw edentate; hind coxa with dorsobasal carina.

Male unknown.

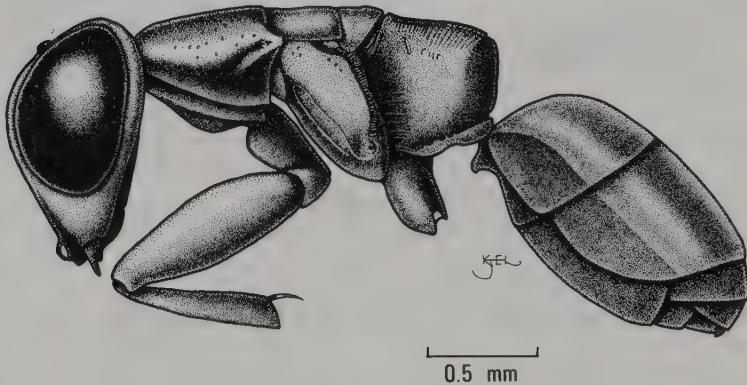


Fig. 42. *Obenbergerella aenigmaticus*, female.

**Hosts**

Unknown.

**Distribution**

This genus occurs in South Africa.

**Discussion**

Unfortunately, the only specimen known of *Obenbergerella* is the female type of *aenigmatica*. According to Krombein, this specimen was badly damaged in shipping and is missing the antennae and legs, except one fore femur and tibia. The female is strongly



brachypterous with an unusually flat thoracic dorsum. Unlike the other brachypterous African genera, *Afrosega*, *Alieniscus*, *Leptosega*, and *Reidea*, the propodeum of *Obenbergerella* has a long dorsal surface and abruptly declivitous posterior face. In addition, the mesopleuron has an oddly U-shaped omaulus and an apparent episternal sulcus (a feature unique in the Amiseginae). This genus was briefly discussed and illustrated in Krombein (1957).

### Checklist of *Obenbergerella*

---

*aenigmatica* (Bridwell). Afrotropical: s South Africa.

*aenigmatica* (Bridwell) 1919:117. (*Alienus*). Holotype female; South Africa: Cape Town, Golf Links (WASHINGTON).\*

---

### *Perissosega* Krombein (Figs 16c and 43)

*Perissosega* Krombein 1983a 26. Type: *Perissosega venablei* Krombein 1983a:27.  
Monotypic and orig. desig.

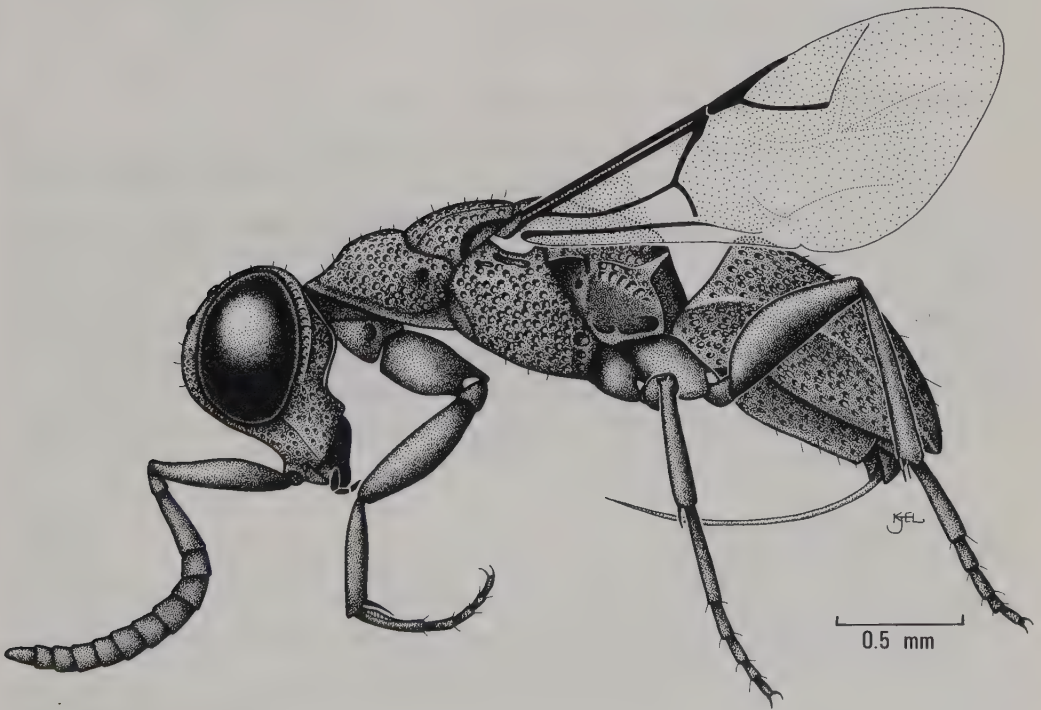


Fig. 43. *Perissosega venablei*, female.

### Generic diagnosis

Scapal basin deep and strongly cross-ridged, upper lateral and dorsal margins carinate (Fig. 16c); occipital carina well developed; malar space with vertical sulcus; flagellum fusiform and flattened on one side, intermediate flagellomeres as broad as long in both sexes; pronotum three-quarters scutal length, with small posteromedial pit; scutum with notauli and without parapsides; mesopleuron without scrobal sulcus or omaulus (Fig. 43); metanotum equal to or longer than scutellum along midline; propodeum with short dorsal surface at nearly a right angle with posterior face, lateral angles long and acute; both sexes fully winged; fore wing Rs extended at acute angle by dark streak, R1 undistinguished, stigma long and slender, medial vein arising before cu-a; tarsal claw dentate; hind coxa with dorsobasal carina.

### Hosts

Unknown.

### Distribution

*Perissosega* has been collected in Sri Lanka.

### Discussion

This genus is distinguished by the long spine-like propodeal angles, sharply angled Rs, short and stout flagellum in both sexes, simple mesopleuron, face with a frontal carina and both sexes winged. It is one of two amisegine genera with a transverse frontal carina, although it is not nearly as pronounced as the one in *Bupen*. There is little sexual dimorphism in *Perissosega*, other than the number of external gastral segments and the presence of an ovipositor. However, the female flagellum is broader than in the male with individual articles somewhat broader than long. The wing venation and spine-like propodeal angles indicate a relationship with *Atoposega*.

*Perissosega* was reviewed and well illustrated by Krombein (1983a).

### Checklist of *Perissosega*

---

*venablei* Krombein. Oriental: Sri Lanka.

*venablei* Krombein 1983a:27. Holotype female; Sri Lanka: Southern Prov., Galle Dist., Kanneliya section., Sinharaja Jungle (WASHINGTON).\*\*

---

### *Reidia* Krombein (Fig. 44)

*Reidia* Krombein 1957:203. Type: *Reidia turneri* Krombein 1957:204. Monotypic and orig. desig.

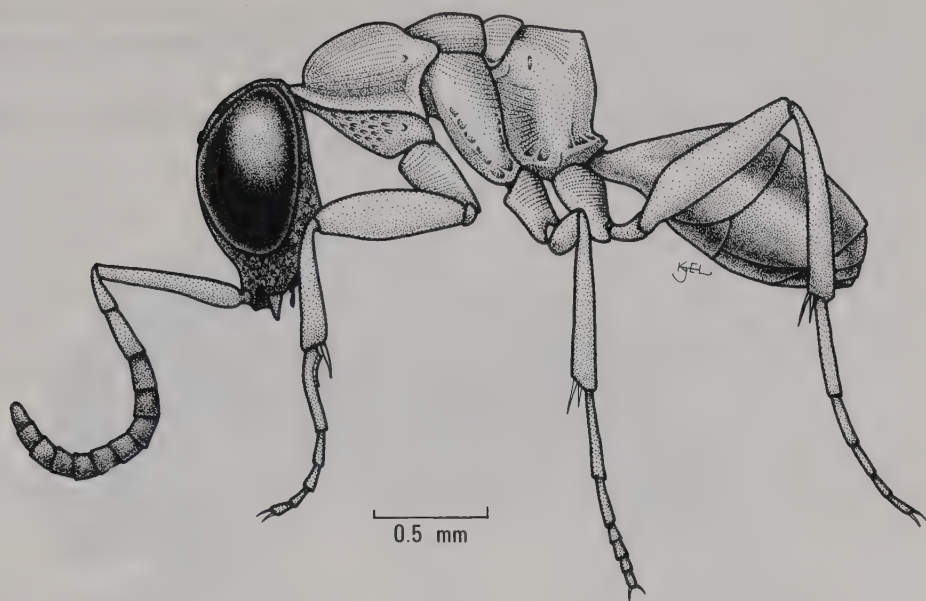


Fig. 44. *Reidia turneri*, male.

### Generic diagnosis

Face reticulate-foveate; malar space without sulcus; occipital carina absent; flagellum slender, with intermediate segments about as long as broad; pronotal length subequal to combined lengths of scutum and scutellum, with pit before lateral lobe; scutum with lateral lobe concealing tegula and wing pads (if present) in both sexes, without notauli or parapsides; mesopleuron with omaulus and without scrobal sulcus; metanotum 1.5 times as long as scutellum medially; propodeum rounded laterally, with long dorsal surface, angulate before posterior declivity; thoracic dorsum finely and closely lineate; hind coxa without dorsobasal carina; tarsal claw edentate.

### Hosts

Unknown.

### Distribution

*Reidia turneri* has been collected in South Africa.

### Discussion

Another of the nearly wingless African genera, *Reidia* is probably most closely related to *Obenbergerella*. Both have a sessile abdomen and mesopleuron with an omaulus. It

differs from *Obenbergerella* in having a somewhat short, fusiform flagellum (filiform in *Obenbergerella* according to Bridwell (1919), the thoracic dorsum primarily lineolate and the metanotum shorter.

Species are distinguished by differences in coloration, sculpture of the scapal basin, thoracic dorsum, and terga (Krombein 1957, 1983b, 1984).

### Checklist of *Reidia*

---

*capensis* Krombein. Afrotropical: South Africa (Cape Prov.).

*capensis* Krombein 1984:213. Holotype male; South Africa: Cape Prov., Katberg (LONDON).\*

*natalensis* Krombein. Afrotropical: South Africa (Natal Prov.).

*natalensis* Krombein 1983b:145. Holotype female; South Africa: Natal Prov., Cathedral Peak, 75 km wsw Estcourt (PRETORIA-TM).

*turneri* Krombein. Afrotropical: South Africa.

*turneri* Krombein 1957:204. Holotype female; South Africa: Port St. John, Pondoland (LONDON).\*

---

### *Rohweria* Fouts (Fig. 45)

*Rohweria* Fouts 1925:515. Type: *Rohweria metallica* Fouts 1925:516. Monotypic and orig. desig.

### Generic diagnosis

Scapal basin cross-ridged; malar space with vertical sulcus; occipital carina present; male flagellum broad and cylindrical; pronotum 1.2 times as long as scutum, with short medial groove and depression before lateral lobe; mesopleuron with omaulus and long slender, parallel-sided scrobal sulcus; scutum with notauli and parapsides; propodeum with narrow dorsal surface and abrupt posterior declivity, lateral angle small, blunt, and obtuse; metanotum subequal in length to scutellum; male fully winged, fore wing Rs extended by evenly curved dark streak, medial vein arising before cu-a, stigma very long and slender, without indication of R1; hind coxa with dorsobasal carina; tarsal claw with perpendicular tooth; body strongly bluish; sterna densely setose.

Female unknown.

### Hosts

Unknown.



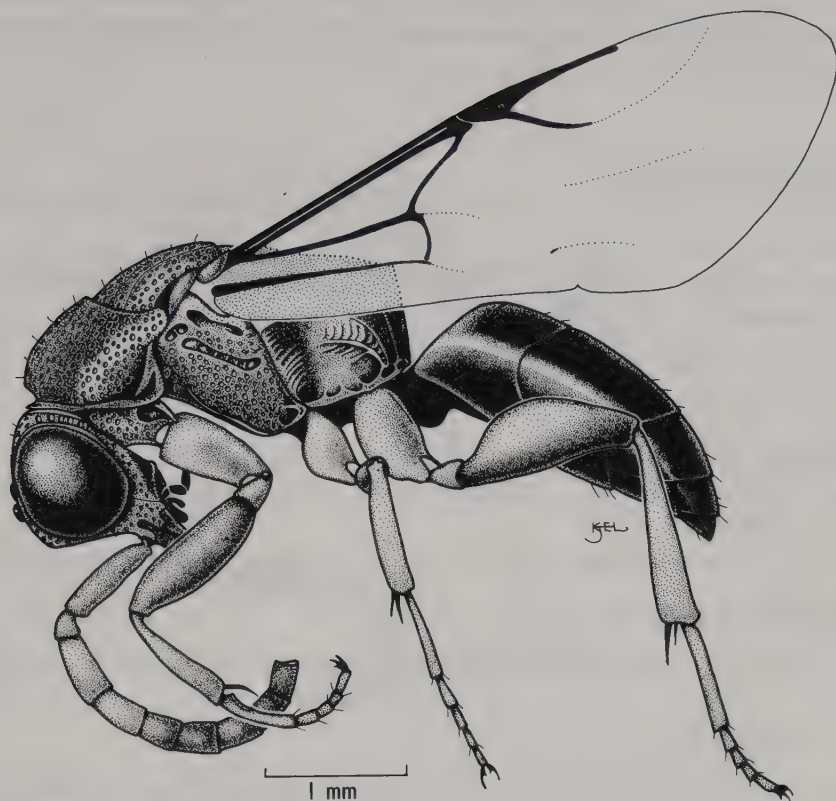


Fig. 45. *Robweria metallica*, male.

## Distribution

This genus is known from the Philippine Islands.

## Discussion

The strong blue colour of the head and thorax of male *Robweria* is one of the most distinctive features of this genus. Few other Oriental amisegines are distinctly metallic blue, except some *Myrmecomimesis* and *Cladobethylus*. *Robweria* are relatively large, heavy-bodied, and coarsely punctate wasps. They can be distinguished by the mesopleuron with scrobal sulcus and omaulus, short, stout male flagellum, hind coxa with dorsobasal carina, and propodeum with obtuse lateral angles.

Krombein (1957) reviewed the genus. Species distinctions are based on the extent of the blue coloration, shape and sculpture of the head and thorax, and relative proportions of antennal articles. *Robweria metallica* is the most highly coloured of the

three listed species, with the propodeum blue as well. The propodeum is black in *azurea* and *minor*. *Robweria minor* can be distinguished by the smooth scapal basin, small ocelli, and angulate posterior margin of the pronotum.

### Checklist of *Robweria*

---

*azurea* Krombein. Oriental: Philippines.

*azurea* Krombein 1957:190. Holotype male; Philippines: Mindanao, Butan (WASHINGTON).\*\*

*metallica* Fouts. Oriental: Philippines.

*metallica* Fouts 1925:516. Holotype male; Philippines: Sibuyan (WASHINGTON).\*

*minor* Krombein. Oriental: Philippines.

*minor* Krombein 1957:191. Holotype male; Philippines: Luzon, Mt. Makiling (WASHINGTON).

---

### *Saltasega* Krombein (Fig. 46)

*Saltasega* Krombein 1983a:48. Type: *Saltasega bella* Krombein 1983a:50. Orig. desig.

### Generic diagnosis

Malar space without vertical sulcus; occipital carina complete dorsally; male flagellum long, filiform, and cylindrical in cross-section, female flagellum short and fusiform; pronotum as long as combined lengths of scutum, scutellum, and metanotum in female, with medial groove and pit before lateral lobe, with posterior margin thickened in female; mesopleuron without scrobal sulcus, with omaulus; metanotum longer than scutellum; female scutellum strongly raised above scutum in profile, normal in males; propodeum with short dorsal surface extending rather abruptly to posterior declivity, lateral angles blunt; female strongly brachypterous; male fully winged, fore wing Rs extended by evenly curved dark streak, medial vein arising before cu-a, R1 two-thirds stigmal length; hind coxa without dorsobasal carina; tarsal claw with small submedial tooth.

### Hosts

Unknown.

### Distribution

*Saltasega* is known from Sri Lanka.

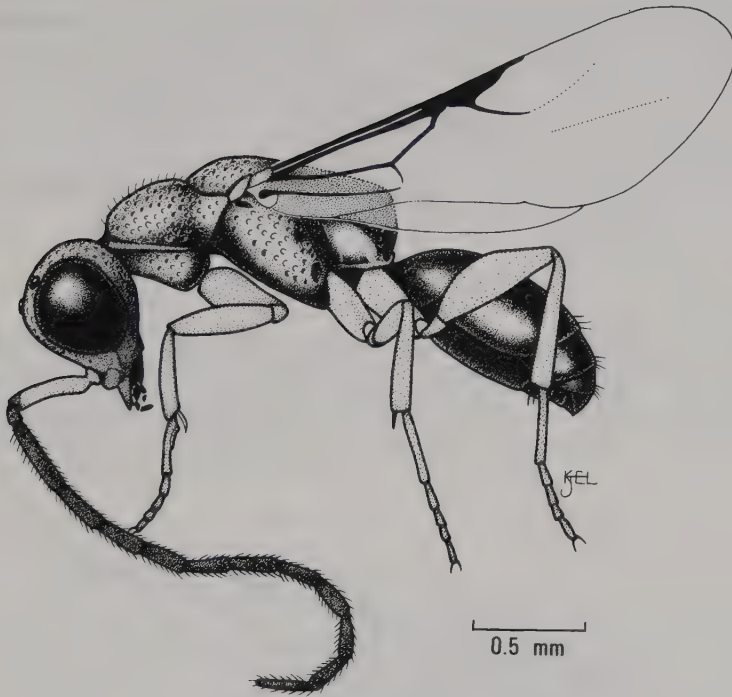


Fig. 46. *Saltasega bella*, male.

## Discussion

*Saltasega* is strongly sexually dimorphic; males being fully winged and females nearly wingless. Males can be recognized by the smooth scapal basin, malar sulcus present, flagellum slender and cylindrical, R1 clearly delimited, occipital carina and omaulus present, and propodeum without dorsal surface, lateral angles obtuse. Females can be immediately recognized by the strongly elevated scutellum and the thickened posterior margin of the pronotum.

As discussed and illustrated by Krombein (1983a), the two species, *bella* and *distorta*, can be separated by head and pronotal dimensions. The head and pronotum of *bella* are narrower than those of *distorta*.

## Checklist of *Saltasega*

*bella* Krombein. Oriental: Sri Lanka.

*bella* Krombein 1983a:50. Holotype female; Sri Lanka: Central Prov., Kandy Dist., Kandy, Udawattakele Sanct. (WASHINGTON).\*\*

*distorta* Krombein. Oriental: Sri Lanka.

*distorta* Krombein 1983a:51. Holotype male; Sri Lanka: Central Prov., Kandy Dist., Kandy, Udawattakele Sanct. (WASHINGTON).

---

*Serendibula* Krombein (Figs 16e, 47)

*Serendibula* Krombein 1980:256. Type: *Serendibula deraniyagalai* Krombein 1980:257. Monotypic and orig. desig.

**Generic diagnosis**

Head without occipital carina or vertical malar sulcus; scapal basin densely cross-ridged; male flagellum long, filiform, and cylindrical; female flagellum short and broad; pronotum as long as scutum in male and as long as scutum, scutellum, and metanotum combined in female, with medial groove and pit before lateral lobe;

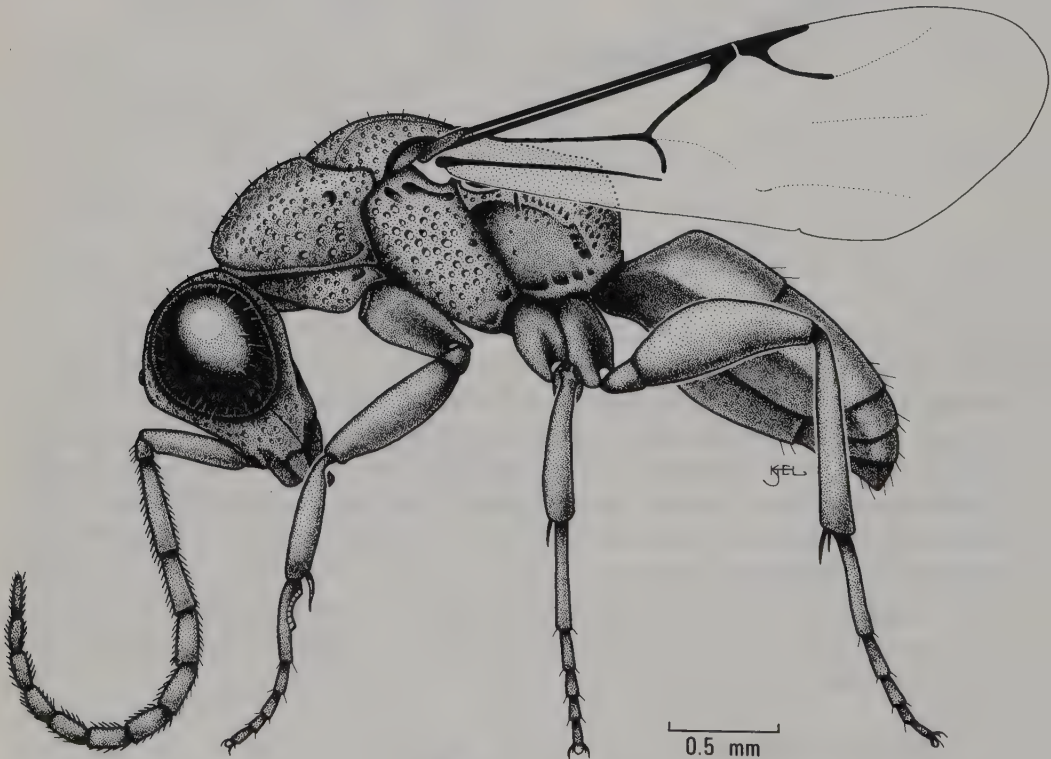


Fig. 47. *Serendibula deraniyagalai*, male.



mesopleuron without scrobal sulcus and males without omaulus; female eyes with long setulae; female brachypterous with small wing pads and tegula; male fully winged, fore wing Rs extended by evenly curved dark streak, stigma slender and R1 not indicated, medial vein arising before cu-a; female metanotum considerably longer than scutellum, with pair of small rounded lamellae anteriorly; male metanotum 1–1.2 times as long as scutellum; propodeum with short dorsal surface and blunt lateral angle in male or laterally rounded in female; hind coxa with dorsobasal carina; tarsal claws with medial tooth;

## Hosts

Unknown.

## Distribution

This genus is found in Sri Lanka.

## Discussion

*Serendibula* and *Baeosega* are closely related and for a brief period were treated as congeneric (see Krombein 1983a). Both lack an occipital carina and malar sulcus, have a carinate hind coxa, simple mesopleuron, and brachypterous females. However, female *Serendibula* have the propodeum laterally rounded and T-II is closely longitudinally cross-ridged; males have a dentate tarsal claw and the apical flagellomeres are considerably shorter.

The six listed species were discussed and keyed by Krombein (1983a). Species distinctions are based on colour, sculpture, and various structural dimensions.

## Checklist of *Serendibula*

---

*deraniyagalai* Krombein. Oriental: Sri Lanka.

*deraniyagalai* Krombein 1980:257. Holotype female; Sri Lanka: Eastern Prov., Amparai Dist., Ekgal Aru Sanct. (WASHINGTON).\*\*

*gracilis* Krombein. Oriental: Sri Lanka.

*gracilis* Krombein 1983a:37. Holotype female; Sri Lanka, Central Prov., Kandy Dist., Kandy, Udawattakele Sanct. (WASHINGTON).

*insolita* Krombein. Oriental: Sri Lanka.

*insolita* Krombein 1983a:38. Holotype female; Sri Lanka: North Western Prov., Kurunegala Dist., Kurunegala, Badegamuwa Jungle (WASHINGTON).

*karunaratnei* Krombein. Oriental: Sri Lanka.

*karunaratnei* Krombein 1983a:35. Holotype female; Sri Lanka: Central Prov., Kandy Dist., Kandy, Udawattakele Sanct. (WASHINGTON).\*

*kasyapai* Krombein. Oriental: Sri Lanka.

*kasyapai* Krombein 1983a:40. Holotype female; Sri Lanka: Central Prov., Matale Dist., Kibissa (WASHINGTON).\*

*paradoxa* Krombein. Oriental: Sri Lanka.

*paradoxa* Krombein 1983a:39. Holotype female; Sri Lanka: North Western Prov., Kurunegala Dist., Kurunegala, Badegamuwa Jungle (WASHINGTON).

---

---

## 10 SUBFAMILY LOBOSCELIDIINAE

---

These unusual and aberrant looking wasps are rarely collected and as a consequence are not well known. They can be recognized immediately by the oddly shaped head, antennae inserted high on the face, large tegulae, and abdomen with five external segments in males and four in females.

Loboscelidiines occur in the Indoaustralian Region. The structure of the mandibles and ovipositor suggests that these wasps are also parasites of walking stick eggs.

### DIAGNOSTIC CHARACTERISTICS

1. Face protruding, antennae inserted horizontally on frontal shelf far above mouth.
2. Clypeus long, apical margin linear.
3. Mandibles long, slender, and edentate.
4. Tongue short and unmodified, lying flat in oral fossa; maxillary palpus five-segmented; and labial palpus three-segmented.
5. Occipital carina absent.
6. Malar space unmodified.
7. Antenna sexually dimorphic; male flagellomeres 1.5–3 times as long as broad, female flagellomeres broader than long; scape ventrally carinate and often with transparent ventral 'window'.
8. Head with long neck-like cervical projection, which has a lateral fringe of flattened setae.
9. Pronotum quadrate, with anterolateral fringe of flattened setae, dorsally and laterally flattened, without pits or sculpturing, not freely hinged to mesothorax.
10. Propleura meeting ventromedially for most of length, largely covering sternum.
11. Mesopleuron with dorsal ridge which holds lower edge of tegula; scrobal sulcus and scrobe absent or indicated by small notch; omaulus present.
12. Scutum with or without notauli.
13. Tegula very large, covering both wing bases and extending back to posterior scutellar margin.
14. Scutellum about as long as scutum.

15. Metanotum one-third to one-half scutellar length, without discrete medial triangular disk or elevated disk.
16. Propodeum nearly vertical with little dorsal surface, spiracle located on top of spiracular shelf or ridge.
17. Fore wing venation reduced, without costa, cu-a, or stigma, A1 may also be absent, at most only medial cell closed; venation restricted to basal tenth to half of wing; membrane often maculate.
18. Hind wing without sclerotized veins.
19. Both sexes fully winged.
20. Femora and tibiae usually with transparent shield or window.
21. Abdomen without lateral bend, venter strongly convex, T-II–IV laterally emarginate and spiracle located adjacent to or above emargination; male with five visible gastral segments, female with four.
22. Female ovipositor needle-like.
23. Volsella with slender digitus and cuspis, digitus attached basally.
24. Body non-metallic red to black.

## SYSTEMATICS

This small, aberrant subfamily includes two genera, *Loboscelidia* and *Rhadinoscelidia*. There are few specimens in collections and females are particularly rare. Most individuals have been caught in malaise traps. The dominant reddish brown colour and large ocelli suggest that loboscelidiines are nocturnal or crepuscular.

There has been a great deal of confusion over the placement of this family. Originally described by Westwood (1874), he placed *Loboscelidia* in the Diapriidae (Proctotrupoidea). Ashmead (1902) assigned the genus to the Figitidae (Cynipoidea), giving it tribal rank. Maa and Yoshimoto (1961) revised *Loboscelidia*, raised it to family status, and placed it in the Chrysidoidea. Lin (1964) elevated *Loboscelidia* subgenus *Scelidoloba*, described by Maa and Yoshimoto (1961), to generic status. For some reason, determining the sex of these wasps has been a historical problem. *Scelidoloba* was erected for individuals that later turned out to be female *Loboscelidia*. Riek (1970) placed *Loboscelidia* back in the Proctotrupoidea. Finally, Day (1978) made a detailed examination of the abdominal morphology of *Loboscelidia* and concluded that this genus belonged in the Chrysididae, based on homologies in abdominal structure. Since Day's study a variety of authors have treated *Loboscelidia* as a subfamily in the Chrysididae, including Bohart and Kimsey (1982) and Krombein (1983a).



## KEY TO GENERA OF LOBOSCELIDIINAE

---

Fore wing venation restricted to basal ninth or tenth of wing; vertex sharply declivitous behind hind ocelli; cervical expansion of head with posterior shield-like expansion clearly separate from rest of head (Fig. 50)

*Rhadinoscelidia* Kimsey, p.148

---

Fore wing venation restricted to basal third to half of wing; vertex not sharply declivitous behind hind ocelli; cervical expansion continuous without discrete posterior expansion (Fig. 48)

*Loboscelidia* Westwood, p.143

---

*Loboscelidia* Westwood (Figs 2c, 4c, 7c, 48, and 49)

*Loboscelidia* Westwood 1874:171. Type: *Loboscelidia rufescens* Westwood 1874:172. Monobasic.

*Loboscelidoidea* Rye 1876:365. Invalid emendation of *Loboscelidia* Westwood 1874.

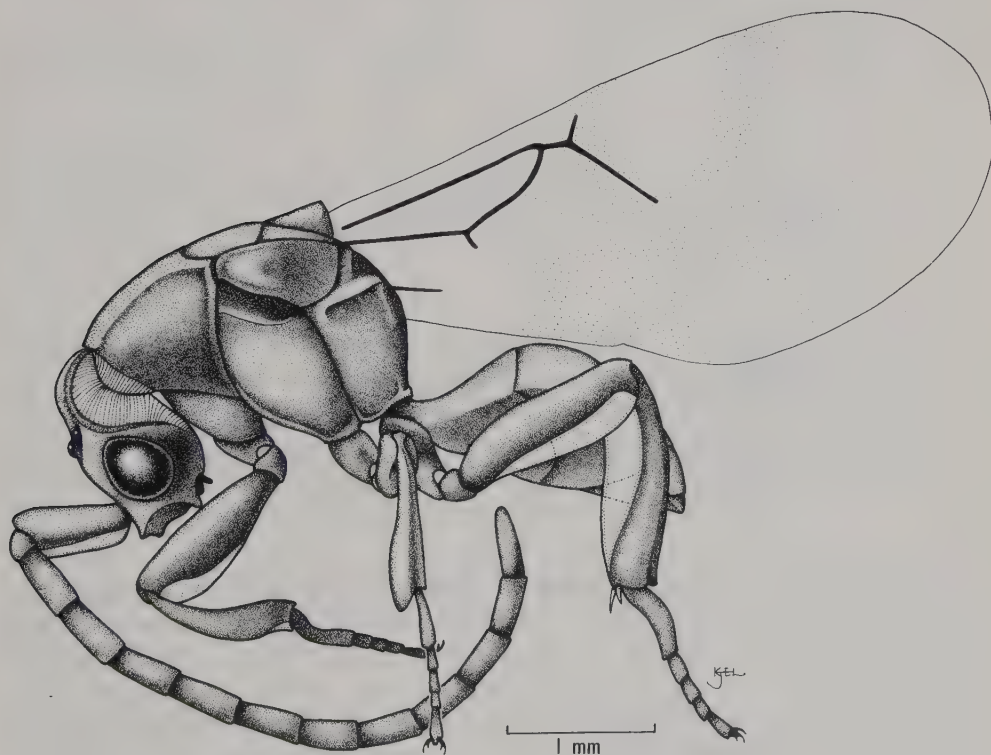


Fig. 48. *Loboscelidia rufa*, male.

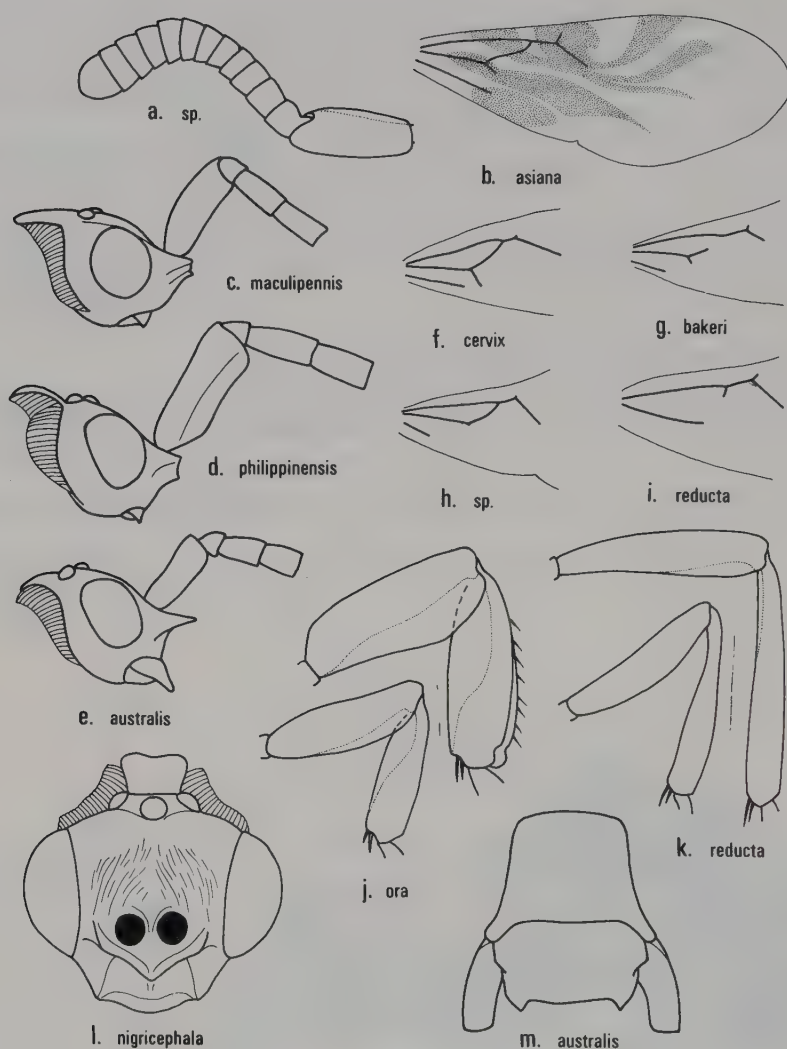


Fig. 49. (*Loboscelidia*. (a) female antenna; (b) fore wing; R—(e) head, lateral; (f)–(i), fore wing venation; (j), (k) hind leg (above), mid leg (below); (l) face; and (m) pronotum and scutum, dorsal. Male, except as indicated.

*Laccomerista* Cameron 1910a:22. Type: *Laccomerista rufescens* Cameron (= *Loboscelidia nixonii* Day 1978:29). Monobasic.

*Scelidoloba* Maa and Yoshimoto 1961:529. Type: *Loboscelidia antennata* Fouts 1922:622. Monobasic and orig. design.

## Generic diagnosis

Vertex flat or shallowly convex; genal fringe extending from adjacent to eye to apex of cervical extension of head (Fig. 2c); cervical extension of dorsal surface nearly parallel-sided or subtriangular, and flat or broadly convex; male scape length less than twice eye height, usually with transparent flange or ridge; male F-II-X 1.5–3.0 times as long as broad, apical flagellomeres about as long as F-II (Fig. 48); female F-II-X as broad or broader than long (Fig. 49a); pronotum subquadrate, with sides parallel or more commonly diverging posteriorly in dorsal view, usually sharply folded laterally and flat or broadly convex dorsally, anterolateral fringe 0.5 times to subequal to eye height (Fig. 48); mesopleuron with omaulus, and scrobal sulcus at least indicated by shallow dent; scutum with or without notauli; scutellum as long or longer than scutum; metanotum narrow and parallel sided; fore wing veins A and cu-a present, venation extending to 0.3–0.5 times wing length, membrane usually maculate (Fig. 49b), wing 0.4–0.6 times as broad as long; femora and tibiae usually with transparent flange or 'window' (Fig. 49j).

## Hosts

An undescribed species of *Loboscelidia* was reared from the eggs of a phasmatid, ?*Acrophylla* sp. (Riek 1970).

## Distribution

*Loboscelidia* occur throughout the wet tropical parts of the Oriental and Australian Regions, from southern India and southern China and Taiwan, south to Australia.

## Discussion

Although specimens of these odd-looking chrysidids are rare in collections, this appears to be due more to collecting techniques rather than actual rarity. The small number of females collected is probably due to the different habitats occupied by each sex. Males appear to frequent low vegetation and the surface of the leaf litter where they search for females. As suggested by Day (1978) females may spend much of their time in the leaf litter, under bark, or in other similar situations searching for walking stick eggs.

Collections made with malaise traps have greatly increased the number of known species, although most of these are represented only by males (Kimsey 1988d). There is every indication that one or more distinct species may occur on every major island in the Indoaustralian Region, particularly since these wasps are not strong fliers, and, at least females, apparently spend most of their time in cryptic habitats.

*Loboscelidia* are more robust, with much broader wings than those of *Rhadinoscelidia*. Other diagnostic features of this genus are the linear or broadly convex vertex and cervical projection (Fig. 49c–e), long genal and pronotal fringes, subquadrate

pronotum, and the greater extent of the wing occupied by venation. The pronotum is usually sharply folded laterally, but may be broadly rounded in a number of species, including *carinata* and *maculata*. The notauli usually extend from the anterior to posterior scutal margin. However, they extend only part way in *nigricephala*, *cervix*, and *philippinensis*, and are completely absent in *ora*, *australis*, and *maculata* (Fig. 49m). Fore wing venation varies somewhat in this group as well; R1 is absent in *cervix* (Fig. 49f), and M, Cu, and cu-a are absent in *reducta* (Fig. 49i). Finally, the size and shape of the femoral and tibial flanges are useful characteristics for distinguishing some species. These flanges are greatly reduced in *reducta* (Fig. 49k).

### Checklist of *Loboscelidia*

---

*antennata* Fouts. Oriental: Singapore.

*antennata* Fouts 1922:622. Holotype female; Singapore (WASHINGTON).\*

*asiana* Kimsey. Oriental: Viet Nam.

*asiana* Kimsey 1988d:68. Holotype male; Viet Nam: Dalat (HONOLULU).\*

*atra* Krombein. Oriental: Sri Lanka.

*atra* Krombein 1983a:52. Holotype male; Sri Lanka: Sabaragamuwa Prov., Ratnapura Dist., Sinharaja Jungle (WASHINGTON).

*australis* Kimsey. Australian: e Australia.

*australis* Kimsey 1988d:69. Holotype male; Australia: New South Wales, Spencer (GAINESVILLE-AEI).\*

*bakeri* Fouts. Oriental: Borneo, Viet Nam.

*bakeri* Fouts 1922:620. Syntype males (not females); Borneo: Sandakan (WASHINGTON).\*

*brunnea* Fouts. Oriental: Borneo.

*brunnea* Fouts 1922:626. Holotype male (not female); Borneo: Sandakan (WASHINGTON).\*

*castanea* Krombein. Oriental: Sri Lanka.

*castanea* Krombein 1983a:54. Holotype male; Sri Lanka: Sabaragamuwa Prov., Ratnapura Dist., Sinharaja Jungle (WASHINGTON).

*cervix* Maa and Yoshimoto. Oriental: New Britain, New Guinea.

*cervix* Maa and Yoshimoto 1961:546. Holotype male; New Britain: Vudal, near Keravat (HONOLULU).\*

*collaris* Fouts. Oriental: Singapore, Borneo, Malaysia.

*collaris* Fouts 1922:627. Syntype males (not females); Singapore (WASHINGTON).\*

*defecta* Kieffer. Oriental: Philippines, Malaya, Laos, Viet Nam, s China, Borneo.

*defecta* Kieffer 1916a:18. Syntype male, female; Philippines: Palawan, Puerto Princesa (Mus. ?).



- nigricornis* Fouts 1925:517. Holotype male; Philippines: Mindanao, Surigao (WASHINGTON).\*
- indica* Kimsey. Oriental: s India.
- indica* Kimsey 1988d:69. Holotype male; India: Nilgiri Hills (OTTAWA).\*
- inermis* Kieffer. Oriental: Philippines.
- inermis* Kieffer 1916a:15. Syntype females (males ?); Philippines: Mindanao, Butuan (BERLIN ?).
- laotiana* Kimsey. Oriental: Laos, Vietnam.
- laotiana* Kimsey 1988d:71. Holotype male; Laos: Vientiane Prov., Ban Van Eue (HONOLULU).\*
- maai* (Lin). Oriental: Taiwan.
- maai* (Lin) 1964:238. (*Scelidoloba*). Holotype female (not male); Taiwan: Paomingszu, 2 km s Keelung City (TAICHUNG).
- artigena* Lin 1964:243. Holotype male; Taiwan: Paomingzu, 2 km s Keelung City (TAICHUNG).
- latigena* Lin 1964:241. Holotype male; Taiwan: Tsaoshan, 20 km nw Taipei city (TAICHUNG) N. synonymy.
- maculata* Kimsey. Australian: n Australia.
- maculata* Kimsey 1988d:72. Holotype male; Australia: Queensland, 7 km sw Bellenden (CANBERRA).\*
- maculipennis* Fouts. Oriental: Borneo, Singapore, Malaysia, Sarawak.
- maculipennis* Fouts 1922:625. Holotype male (not female); Borneo: Sandakan (WASHINGTON).\*
- carinata* Fouts 1922:626. Holotype male (not female); Singapore (WASHINGTON).\*
- nigra* Fouts. Oriental: Philippines.
- nigra* Fouts 1922:621. Syntype males (not female); Philippines: Mindanao, Dapitan, Basilan (WASHINGTON).\*
- nigricephala* Kimsey. Australian: n Australia.
- nigricephala* Kimsey 1988d:72. Holotype male; Australia: Queensland, 21 km s Atherton (INDOOROOPLY).\*
- nixonii* Day. Oriental: Borneo.
- rufescens* (Cameron) 1910a:23. (*Lacomerista*). Holotype male; Borneo: Kuching (LONDON).  
Nec Westwood 1874.
- nixonii* Day 1978:29. Repl. name for *rufescens* (Cameron) 1910a.
- novoguineana* Kimsey. Oriental: New Guinea, New Britain.
- novoguineana* Kimsey 1988d:74. Holotype male; Papua New Guinea: East Highlands,

*Aiyura* (HONOLULU).

*ora* Kimsey. Australian: n Australia.

*ora* Kimsey 1988d:73. Holotype male; Australia: Queensland, Bingil Bay (CANBERRA).\*

*parva* Maa and Yoshimoto. Oriental: Papua New Guinea, New Britain, Sarawak.

*parva* Maa and Yoshimoto 1961:545. Holotype male; New Britain: Vunabakan, 10 km e Keravat (HONOLULU).

*pasohana* Kimsey. Oriental: Malaysia.

*pasohana* Kimsey 1988d:75. Holotype male; Malaysia: Pasoh Forest Reserve, Negri Sembilan (GAINESVILLE-AEI).\*

*philippinensis* Fouts. Oriental: Philippines.

*philippinensis* Fouts 1922:623. Syntype males (not females); Philippines: Mindanao, Iligan (WASHINGTON).\*

*reducta* Maa and Yoshimoto. Oriental: Viet Nam, Laos, Thailand, Sarawak.

*reducta* Maa and Yoshimoto 1961:537. Holotype male; Viet Nam: Dai Lanh, n Nha Trang (HONOLULU).\*\*

*rufa* Fouts. Oriental: Philippines.

*rufa* Fouts 1925:517. Syntype males; Philippines: Sibuyan (WASHINGTON).\*

*rufescens* Westwood. Oriental: Sula Isl., Celebes.

*rufescens* Westwood 1874:172. Syntype females (males ?); Sula (not Sulu) Isl. (OXFORD).

*sarawakensis* Kimsey. Oriental: Sarawak, Brunei, Sulawesi, n Borneo.

*sarawakensis* Kimsey 1988d:75. Holotype male; Sarawak: 4th Div. Gn. Mulu (LONDON).

*scutellata* Fouts. Oriental: Philippines.

*scutellata* Fouts 1922:628. Syntype males (not females); Philippines: Mindanao, Basilan, Surigao (WASHINGTON).\*

*sinensis* Kimsey. Oriental: s China.

*sinensis* Kimsey 1988d:76. Holotype male; China: Hainan Isl., Tien Fong Mts. (LONDON).

### *Rhadinoscelidia* Kimsey (Fig. 50)

*Rhadinoscelidia* Kimsey 1988d:77. Type: *Rhadinoscelidia malaysiae* Kimsey 1988d:78. Monobasic and orig. desig.

### Generic diagnosis

Vertex strongly arched, with ocelli at apex and sharply declivitous posteriorly (Fig. 50); genal fringe short, not extending on to cervical plate, separated from ventral surface by carina or flange, with separate anterolateral fringe; male scape length twice

or more, eye height, without transparent flange; male F-II-X less than twice as long as broad, apical flagellomeres about as long as broad; pronotum narrowed medially in dorsal view, broadly rounded laterally and dorsally, anterior fringe located on anterolateral angle or tubercle, less than 0.25 times eye height; mesopleuron with omaulus and without indication of scrobal sulcus; scutum with notauli; scutellum as long as scutum; metanotum narrow and parallel-sided; fore wing without A or cu-a, venation occupying less than one-fifth of wing; membrane evenly stained, wing 0.2–0.3 times as broad as long; femora with small apical flanges; tibiae without transparent flange.

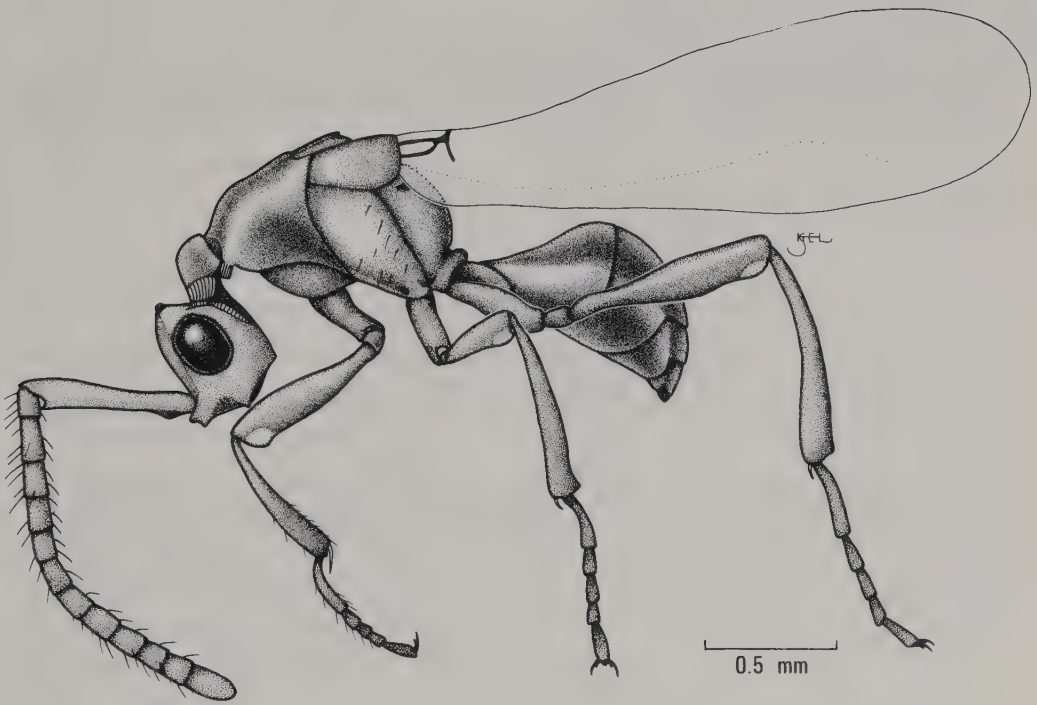


Fig. 50. *Rhadinoscelidia malaysiae*, male.

### Hosts

Unknown.

### Distribution

The single species, *malaysiae*, is known only from Malaysia.

## Discussion

Generalizations are difficult when a genus is known from only a single male specimen. *Rhadinoscelidia* is characterized by the extreme reduction of the wing venation, short male flagellomeres, slender legs, and, in particular, the strongly constricted post-ocellar area of the head. *Loboscelidia reducta* somewhat resembles *Rhadinoscelidia* in the reduction of the genal and cervical fringes and slender legs. However, the wing venation of *reducta* is reduced in a very different way from that of *Rhadinoscelidia*.

The biology of this genus is probably similar to that of *Loboscelidia*.

## Checklist of *Rhadinoscelidia*

---

*malaysiae* Kimsey. Oriental: Malaysia.

*malaysiae* Kimsey 1988d:78. Holotype male; Malaysia: Negri Sembilan, Pasoh Forest Res. (GAINESVILLE-AEI).\*

---



---

## 11 SUBFAMILY CHRYSIDINAE

---

In number of species this is the largest subfamily of chrysidids, comprising 80 per cent of the family. These wasps can be recognized by their bright metallic coloration (except in a few rare exceptions), three, or less commonly four, visible gastral terga, and concave or flat abdominal venter.

Members of this subfamily are commonly encountered in all zoogeographic regions. They are generally nest parasites of wasps and bees, although *Praestochrysis* attacks prepupal moth larvae.

### DIAGNOSTIC CHARACTERISTICS

1. Face somewhat concave, usually with well-developed scapal basin and often with transverse carina across brow.
2. Clypeus with two small sublateral notches.
3. Mandibles relatively slender with 1–2 subapical teeth or subapical notch, or robust with three or more teeth.
4. Tongue usually elongate and protruding from oral fossa, with elongate cardines, galeae, and glossae. Labial palpus usually three-segmented but sometimes absent or one-segmented. Maxillary palpus usually five-segmented but rarely may be two- or one-segmented.
5. Occipital carina absent, often replaced by transverse preoccipital welt terminating in hook or lobe, located just above occiput.
6. Gena often with vertical carina extending from mandibular socket.
7. Pronotum broad and subquadrate dorsally, anterior declivity often with 1–4 pits, and usually concave or with a broad shallow pit laterally.
8. Prosternum large and exposed basally by barely confluent propleura.
9. Scutum with well-developed notauli and parapsides, which may be occasionally obsolescent or absent.
10. Mesopleuron usually with scrobal sulcus, episternal sulcus, oblique mesopleural carina, verticulus, and/or vertical post-scrobal carina.
11. Scutellum usually with anterolateral hook or lobe.
12. Metanotum evenly convex or with medial tooth or projection, usually with

carinate lateral angle or tooth adjacent to propodeal angle.

13. Tegula usually unmodified, covering fore wing base; less commonly enlarged and covering both wing bases, or reduced and partly covered by notum.
14. Propodeum abruptly declivitous posteriorly, without dorsal surface, lateral angle large and well developed, spiracle located below transpleural carina.
15. Tarsal claws dentate or edentate.
16. Fore wing venation complete with closed marginal, discoidal, and subdiscoidal cells, or reduced with these cells incomplete or absent.
17. Hind wing with subcosta, costal remnant, Rs, M+Cu and A1, or Rs and M+Cu absent.
18. Abdomen with two, three, or four external terga in males and two or three in females; apical tergum often dentate; segments II–V with spiracles located on tergum or laterotergite; venter flat or concave, laterotergite clearly indicated by sulcus.

## SYSTEMATICS

We have divided the subfamily into four tribes: Elampini, Chrysidini, Parnopini, and Allocoeliini. A key to these is given in Chapter 7. The largest tribe in terms of genera and species is the Chrysidini. These can be distinguished by the presence of a subapical row of pits, or faint indication of such, across T-III. Next in size and complexity is the Elampini. Here there are three visible terga and, for the most part, dentate tarsal claws. Parnopini is a much smaller group and there are four terga in males and three in females. T-III is broadly rounded and multidenticulate apically. In addition, there is a pair of obliquely oriented discal depressions on the apical tergum. The Allocoeliini is a small southern African group with dentate tarsal claws but only two visible terga.

## TRIBE ELAMPINI

The Elampini is the second largest tribe in the Chrysidinae. Although found world-wide, the majority of genera and species occur in the arid sections of the Holarctic Region, particularly south-western North America, southern USSR, and the Middle East. The larger elampine genera all need extensive revision.

Elampines can be distinguished by the three visible abdominal segments, T-III without a pit row or sublateral foveae, and tarsal claws usually dentate.

## DIAGNOSTIC CHARACTERISTICS

1. Mandibles usually robust with two or more teeth.
2. Pronotum with small anteromedial depression or pit.
3. Mesopleuron often ventrally and/or anteriorly angulate, scrobal sulcus oblique when present and associated with scrobal carina.
4. Scutellum anteriorly, usually without tubercle, on edge of wing fossa.
5. Propodeal spiracle located above transpleural carina.
6. Tegula unmodified.
7. Wing venation reduced, fore wing with short Rs and no Cu or RS+M veins, and only medial and submedial cells closed, medial vein often strongly arched.
8. Fore femur often ventrally carinate and angulate.
9. Mid and hind tibia often with pit or dark spot on inner surface.
10. Tarsal claws usually with one or more subsidiary teeth, rarely edentate.
11. Abdomen with three visible terga in both sexes; T-II-IV with spiracles on tergite just above laterotergite; T-III without pit row or foveae, apical margin usually entire but sometimes medially notched or produced into a membrane-filled apical truncation, or rarely may have 2-6 teeth.

## SYSTEMATICS

The Elampini includes many small, highly specialized taxa, as well as several large diverse genera. However, despite these features it is possible to make generalizations. Based on the other chrysidid tribes and subfamilies as out-groups, we have found 56 characteristics which provide useful phylogenetic information. The derived conditions of these features are used in Fig. 51. The numbers correspond with those used below, where we discuss the primitive and derived states of each character.

1. Genal fringe. In all female *Elampus* the gena has an even dense row of setae extending from the mandibular socket along the edge of the head behind the eye (see Fig. 54c). This fringe does not occur in any other chrysidids so its presence is considered to be derived.

2. Genal carina. Several modifications of the genal carina occur in the Chrysididae. In the primitive condition, seen in most elampines, the carina extends from the mandibular socket along the gena near the ocular margin (Fig. 3). In *Omalus* and *Pseudomalus* this carina bends anteriorly, bisecting the malar space and never reaching the mandibular socket (Fig. 85b).

3. Subgenal carina. Most Chrysidinae have only a single carina on the gena. How-

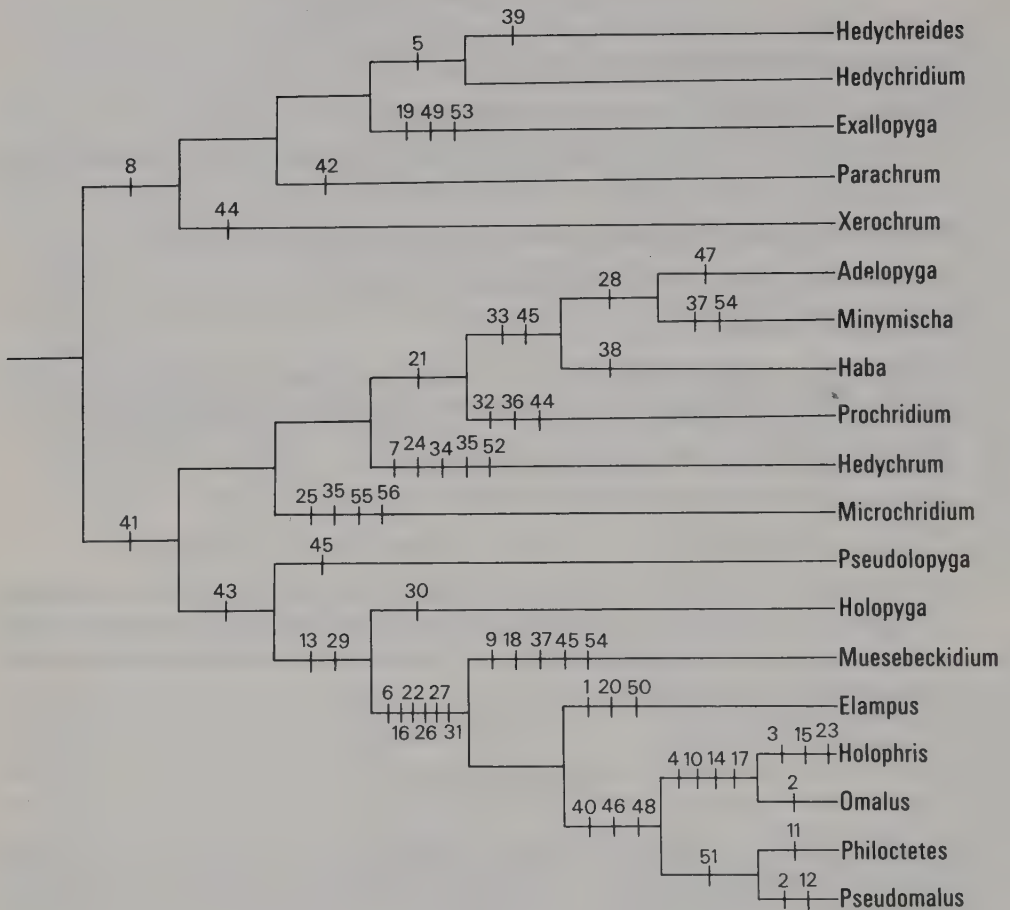


Fig. 51. Phylogenetic relationships among genera of Elampini. Numbers correspond with derived states given in the test.

ever, in *Holophris* (Fig. 66b) and several genera in the Chrysidini there is a second carina below the genal carina near the base, which encloses a subgenal area.

4–5. Scapal basin. Most elampines have the scapal basin somewhat concave with punctures laterally and a medial zone of transverse rugae or cross-ridging. The lateral punctures are the same size as those on the brow or tend to become gradually smaller toward the clypeus. In one derived condition, seen in *Omalus* and *Holophris*, the scapal basin is smooth and polished, at least on the medial third (Fig. 66a) (4). A second derivation occurs in *Hedychridium* and *Hedychreides*. In these genera the punctures on the scapal basin are abruptly smaller than those on the brow in the vast majority of



species, and the scapal basin generally has extensive silvery, appressed setae (Figs 60a and 62b) (5).

6. Head shape. The head is typically ovoid and rounded posteriorly in most chrysidids. However, in *Muesebeckidium*, *Holophris*, *Philoctetes*, *Omalus*, and *Pseudomalus* the head is lenticular, with the posterior margin carinate, particularly behind the eyes.

7. Oral tooth. The back of the head, particularly around the occipital foramen and oral fossa, is generally simple in elampines. However, *Hedychrum* has a sharp tooth at the base of the oral fossa (Fig. 63); a derived feature.

8–9. Pronotal carina. Typically, elampines have the pronotum rounded laterally and anterolaterally, which is the primitive condition. There are two derived conditions in Elampini. In the *Hedychridium* line (Fig. 51) the pronotum has a sublateral carina along the anterior margin before the anterior declivity (Fig. 62m) (8). In some species these carinae may almost meet medially. The pronotum is sharp edged with a strongly produced lateral carina in *Muesebeckidium* (Fig. 73) (9).

10–12. Scutal punctation. Organized arrangement of the scutal punctures is a derived condition in the Chrysididae. Typically, punctures are more or less randomly and densely dispersed across the scutum. However, in *Omalus* and *Holophris* the scutum is smooth and evenly punctate (Fig. 76f) (10). In *Philoctetes* the punctures are clumped along the notauli (Fig. 80e, f) (11), and in *Pseudomalus* they are clumped posteriorly between the notauli (Fig. 85d) (12).

13. Mesopleural shape. Most chrysidids have an evenly rounded mesopleuron, particularly those in the more primitive subfamilies such as the Cleptinae. A variety of derived conditions occur in the Chrysidinae. In the elampine *Holopyga* line, the mesopleuron is sharply angulate, the angle formed by the omaulus, scrobal carina, and verticaulus. The most extremely angulate mesopleuron can be seen in *Muesebeckidium* where the mesopleuron is produced almost wing-like anterolaterally (Fig. 73).

14–15. Omaulus. In most elampines the omaulus is oblique, extending posteroventrally from the epicnemium, which is the primitive condition in this tribe. In both *Omalus* and *Holophris* the omaulus is essentially horizontal, extending from the ventral angle of the pronotum across the mesopleuron to the scrobe (Fig. 75) (14). A further modification of this carina occurs in *Holophris* where there is a second carina running parallel with the omaulus carina (Fig. 66d) (15).

16. Signum carina. As discussed under 11 the mesopleuron is generally evenly rounded in chrysidids. In the *Holopyga* line the mesopleuron is ventrally angulate due to the presence of a carina that extends from the verticaulus to, and along the signum, on the ventral surface of the mesopleuron (Fig. 5a). This derivation does not occur in any other elampines.

17–18. Scutellar shape. The scutellum is evenly rounded in the primitive condition, which is the typical form in elampines. However, two modifications occur in this tribe. In *Omalus* and *Holophris* there are two smooth flattened areas on the anterior scutellar

margin (Figs 66c and 76f) (17). In *Muesebeckidium* the entire anterior margin is smooth and sharply declivitous (Fig. 74d) (18).

19. Scutellar lobe. The presence of a lobe on the anterolateral margin of the scutellum is a feature diagnostic for the Chrysidini. This tubercle is not found in any other chrysidids except the elampine genus *Exallopysga* (see Fig. 56e). The presence of this lobe is considered a derived characteristic in the Elampini.

20. Metanotal projection. Within the Elampini the metanotum is typically evenly rounded and unmodified. However, in *Elampus* (Fig. 53) and a few species of *Philoctetes* (Fig. 80g) the metanotum has a large medial mucro that projects posteriorly over the propodeum. A mucronate metanotum is considered derived.

21–24. Propodeal sculpture. *Hedychridium* has the least specialized propodeal sculpture in this tribe. The posterior surface has a short medial ridge extending from the petiolar insertion to a broad, triangular, dorsomedial enclosure. This is the commonest form in elampines. Several derived conditions occur. First, in *Adelopyga*, *Haba*, *Prochridium*, and *Minymischa* the propodeum is posteriorly evenly granulose- or rugosopunctate, without carinae or enclosures (Fig. 58b) (21). Secondly, in genera closely related to *Omalus* the posterior surface of the propodeum has a triangular medial enclosure at most delimited by a few large, polished areolae (Fig. 66f) (22). Thirdly, in *Hedychrum* the medial enclosure is obscurely defined, and is bisected by a medial carina, which extends from the petiole to the metanotum (Fig. 64l) (24). Finally, in the majority of chrysidines the side of the propodeum (+ metapleuron) has a dorsal carina, the transpleural carina, which extends from adjacent to the scrobe to the apex of the propodeal angle, and then down to the hind coxa. However, in *Holophris* this transpleural carina extends well below the propodeal angle, which is low and obtuse, and a secondary carina extends to it from the transpleural carina (Fig. 66d) (23).

25–31. Fore wing venation. Elampine fore wing venation typically extends into the apical half or one-third of the wing, medial vein is straight or somewhat curved, cell membrane is covered with microtrichia, Rs is more than half as long as M, and the stigma is slender and tapering. This condition is considered primitive and is typical of *Hedychridium* (Fig. 61). Several derivations occur in elampines. *Microchridium* venation is restricted to the basal third or fourth of the wing (Fig. 69) (25). In *Omalus*, *Muesebeckidium*, *Holophris*, *Philoctetes*, *Elampus*, and *Pseudomalus* the medial cell membrane is smooth without microtrichia (26). This same group of genera has a short, broadly rounded stigma (27). Two genera, *Adelopyga* and *Minymischa* have Rs reduced, and less than one-fifth as long as M (Figs 52 and 71) (28). Members of the *Holopyga* line have the medial vein strongly arched and angulate (Fig. 7d) (29). Throughout Chrysididae the costal vein is straight and parallel-sided. The one exception to this can be seen in *Holopyga*, where the costal vein is slightly dilated mid-way between the base and the stigma (Fig. 67). Although this modification is subtle it allows the wing to flex at this point (30). As a result, many dried specimens have the wings bent before the stigma, and in live *Holopyga* this allows the wings to fold down tightly over the

dorsum. *Muesebeckidium*, *Pseudomalus*, *Omalus*, *Elampus*, *Holophris*, and *Philoctetes* differ from other elampines in having Cu elongate before the juncture of cu-a (Fig. 65) (31).

32. Wing membrane. A very unusual, derived feature of *Prochridium* is the regular, fine wrinkling of the fore wing membrane (Fig. 81). This condition occurs nowhere else in the Chrysididae.

33. Fore basitarsal length. Throughout the Chrysididae the fore basitarsis is generally 6 times as long as broad, or shorter. A derived condition occurs in *Haba*, *Minymischa*, and *Adelopyga* (Fig. 52). In these three the fore basitarsis is 9–10 times as long as broad.

34. Hind femur enlargement. The hind femur is generally unremarkable in elampines. However, in *Hedychrum* the hind femur is considerably enlarged and sexually dimorphic; the anterior surface is reticulate and non-metallic brown in males, and shiny green or blue in females. The condition in *Hedychrum* is considered derived.

35. Mid and hind tibial pits. Tibial pits occur in *Hedychrum* (Fig. 64j, k) and *Microchridium* (Fig. 70c), and more poorly defined depressions are in *Hedychreides*. These pits are located on the inner surface of the mid and hind tibiae (only the hind tibiae in *Microchridium*). Their presence is considered derived.

36. Tarsal rake spines. The presence of long, 'rake' spines on the fore tarsomeres is an unusual derived feature in chrysidids. These spines occur only in female *Prochridium* (Fig. 81) and female *Parnopes* in the *grandior* group.

37–38. Prehensile tarsomeres. Females of several elampine genera, *Haba*, *Muesebeckidium*, and *Minymischa*, have oddly curled tarsi. The tarsal claws are long and slender, and are held folded-up against the apical tarsomere, which is in turn curled up towards the next tarsomere (as in Fig. 58c). In *Muesebeckidium* and *Minymischa* only the fore and mid tarsi are involved (37). All tarsi are curled in *Haba* (38). None of these genera appear to be closely related, and the function of this derivation is unknown.

39. Expanded mid tarsus. An unusual leg modification occurs in male *Hedychreides*. The mid tarsomeres, particularly the basal three, are flattened and laterally expanded, with a long lateral fringe (Fig. 60b).

40. Fore femoral shape. Many chrysidids have the fore femur ventrally carinate and/or sub-basally elbowed. A unique modification occurs in *Omalus*, *Philoctetes*, *Pseudomalus*, and *Holophris*. In this group the fore femur is usually flattened and subapically expanded at least in one sex (Fig. 85e).

41–45. Tarsal claw dentition. As discussed in Chapter 7, the primitive tarsal claw in chrysidids has a single, subperpendicular tooth. Various derivations occur in Elampini. In the commonest derived form the subsidiary tooth is subparallel, as in *Hedychrum* (Fig. 64i) (41). In *Parachrum* this subparallel tooth is so large that the claw appears deeply bifid (Fig. 78b) (42). Members of the *Holopyga* line are characterized by having 2–5 subsidiary teeth (as in Fig. 76d, e) (43). *Xerochrum* and *Prochridium* have edentate tarsal claws, although apparently independently evolved (44). Finally, the



claw dentition is sexually dimorphic in *Pseudolopyga*, *Minymischa*, *Muesebeckidium*, and *Haba*, where male hind tarsal claws are tridentate in males and bidentate in females (45).

46–47. Gastral shape. Two derived forms of the gaster occur in Elampini. In the *Omalus* line (Fig. 75) T-I–III are strongly convex and sharp-edged laterally, and the corresponding sterna are usually strongly concave, giving the abdomen a cup-like appearance (46). The converse is true in *Adelopyga*. In this genus the terga are unusually narrow (Fig. 52). As a result the sterna are somewhat convex, and are visible in lateral view (47).

48. T-II dimensions. Another derived feature that unites *Philoctetes*, *Holophris*, *Omalus*, and *Pseudomalus* is the shape of T-II. Unlike other elampines, T-II is longer than T-I or -III (as in Fig. 65).

49–51. T-III modification. T-III is generally simple and unmodified in Elampini. There are three basic derived conditions in this tribe. In *Exallopyga* T-III is sexually dimorphic. Males have a medial depressed area, which is finely coriaceous-punctate, with a medial stripe of appressed setae (Fig. 56*b*) (49). *Elampus* is characterized by an apically produced, snout-like structure on T-III (Fig. 54*h–l*) (50). *Pseudomalus* and *Philoctetes* have a simple V-shaped, medial notch in the apex of T-III (Fig. 85*f–b*) (51).

52. Female S-III. Female *Hedychrum* have two basal sulci, which nearly meet medially, and frequently also have an apicomedial tooth on S-III (Fig. 64*c–e*). These modifications are found nowhere else in the Chrysididae.

53. Aedeagus shape. The elampine aedeagus is generally simple and somewhat lanceolate. An unusual, unique modification occurs in *Exallopyga* where the aedeagus has a spinose submedial lobe (Fig. 56*f*).

54–55. Volsellar structure. Except in Cleptinae, the chrysidid volsella consists of a basally articulated digitus and cuspis. Several elampine genera, including *Minymischa* and *Muesebeckidium*, have apparently lost the digitus (the asetose lobe) (Figs 72*e* and 74*f*) (54), *Microchridium* the cuspis (the setose lobe) (Fig. 70*d*) (55). The structure of the remaining lobe in *Minymischa* differs from that of *Muesebeckidium*, and this condition probably evolved independently in these genera.

56. Non-metallic coloration. The absence of metallic coloration is unusual in Chrysidinae, particularly when the whole body is non-metallic as it is in *Microchridium*. This feature is considered derived.

## KEY TO GENERA OF ELAMPINI

---

1. Hind tarsal claws edentate.	2
Hind tarsal claws with 1–5 subsidiary teeth	3

---



2. Fore wing medial vein arising at cu-a, wing membrane finely and regularly wrinkled (Fig. 81); propodeal angle reduced to small bump; North Africa and Middle East  
*Prochridium* Linsenmaier, p.258  
 Fore wing medial vein arising after cu-a (Fig. 86); wing membrane smooth; propodeal angle well developed; south-western USA.  
*Xerochrum* Bohart, p.270

---

3. Scutellum anteriorly with tubercle on edge of wing fossa (Fig. 56e); scutal notauli represented by deep close row of pits; male T-III medial area depressed and differentially sculptured with setose stripe along mid-line (Fig. 56b); South America.  
*Exallopyga* French, p.173  
 Scutellum anteriorly evenly curved without tubercle on edge of wing fossa; scutal notauli various; male T-III unmodified 4

---

4. Fore wing Rs reduced to stub, less than one-fifth length of medial vein (Fig. 52) 5  
 Fore wing Rs one-half or more as long as medial vein 7

---

5. T-II-III narrow, making sternum convex and visible in lateral view (Fig. 52); Oman  
*Adelopyga* Kimsey, p.161  
 T-II-III broad, sternum flat or concave and not visible in lateral view. 6

---

6. Fore wing venation restricted to basal third of wing (Fig. 69); pronotum without lateral carina; face evenly roughened and somewhat striate, without discrete scapal basin (Fig. 70a); western North America.  
*Microchridium* Bohart, p.236  
 Fore wing venation extending over half wing length; pronotum with lateral carina (Fig. 71); face smooth with scattered punctures, scapal basin clearly indicated, polished and impunctate (Fig. 72a); western North America.  
*Minymischa* Kimsey, p.238

---

7. Tarsal claw with single, perpendicular, submedial tooth (Fig. 62c); face flat or slightly concave with at least a narrow zone of fine cross-ridging in scapal basin; widespread.  
*Hedychridium* Abeille, p.180  
 Tarsal claw with one subparallel subsidiary tooth, or 2 or more subsidiary teeth; face various. 8

---

8. Scapal basin with dense tiny punctures covered with dense appressed silvery setae (Fig. 60a); tarsal claw with single subparallel tooth (Fig. 60c); fore wing medial vein arising at cu-a (Fig. 59); south-western USA.  
*Hedychreides* Bohart, p.178

Scapal basin either smooth and impunctate or with at least narrow zone of cross-ridging, without appressed silver setae; tarsal claw dentition various; fore wing medial vein usually arising before or after cu-a.

9

- 
9. Fore wing medial vein straight or gently curved medially; hind tarsal claw with single subsidiary tooth (except some males) 10  
 Fore wing medial vein strongly arched medially (as in Fig. 75); tarsal claw usually with 2 or more subsidiary teeth. 12
- 

10. Head with sharp tubercle at base of oral fossa; male hind femur enlarged and non-metallic black or brown; female S-III with transverse sub-basal sulci and often apicomedial lobe or tooth (Fig. 64c-e); mid and hind tibia usually with pit on inner surface (Fig. 64j, k); widespread. *Hedychrum* Latreille, p.207  
 Head without tubercle at base of oral fossa; male hind femur not enlarged or non-metallic; female S-III unmodified; mid and hind tibia without pit on inner surface 11
- 

11. Scapal basin coarsely cross-ridged (Fig. 78a); female mid and male hind tarsal claw with subsidiary tooth (Fig. 78b); fore wing Rs more than half as long as medial vein (Fig. 77); southern Africa. *Parachrum* Kimsey, p.249  
 Scapal basin smooth (Fig. 83a); female mid and male hind tarsal claw with 2 subsidiary teeth (Fig. 83d); fore wing Rs one-half or less as long as medial vein (Fig. 82); western North America, Chile. *Pseudolopyga* Krombein, p.260
- 

12. Fore wing medial cell setose. 13  
 Fore wing medial cell asetose. 14
- 

13. Propodeum without discrete medial enclosure (Fig. 58b); mesopleuron evenly rounded, without scrobal carina, omaulus, or verticaulus (Fig. 57); female tarsomeres flattened and held coiled (Fig. 58c); Middle East  
*Haba* Semenov, p.175  
 Propodeum with triangular medial enclosure and carina on posterior surface (Fig. 68c); mesopleuron angulate, with omaulus, and usually with scrobal carina and verticaulus (Fig. 67); widespread. *Holopyga* Dahlbom, p.226
- 

14. Scutellar anterior margin with transverse carina (Fig. 74d); mesopleuron strongly projecting anteriorly (Fig. 73); pronotum with sharp lateral carina; female fore and mid tarsi flattened and expanded laterally, often held coiled (Fig. 74e); North and South America *Muesebeckidium* Krombein, p.241  
 Scutellum without anterior carina; mesopleuron not projecting anteriorly;

pronotum without lateral carina; female fore and mid tarsi unmodified and not held coiled.

15

15. Metanotum mucronate and flat dorsally (Fig. 53); scutum coarsely and regularly punctate; T-III with apical membrane-filled snout-like structure (Fig. 54*b-l*); scapal basin flat or shallowly concave, often with U-shaped cross-ridges or wrinkles (Fig. 54*a, b*); female gena with row of erect, even setae (Fig. 54*c*); widespread.

*Elampus* Spinola, p.163

Metanotum rounded or projecting, rarely mucronate; T-III usually without apical snout-like structure; scutal punctures usually sparse and clumped along or between notauli, or entirely absent; scapal basin usually deeply concave and smooth; female gena without even row of setae; widespread.

16

16. Scutum impunctate (Fig. 66*c*), or with evenly scattered punctures, except laterally; mesopleuron with scrobal sulcus fore-shortened; omaulus elongate and extending nearly horizontally to scrobal sulcus (Fig. 75); T-III often with transparent rim and usually without apical notch

17

Scutum with large punctures, particularly along or between notauli (Figs 80*e, f* and 85*d*); mesopleuron with scrobal sulcus and omaulus subequal in length and extending at an oblique angle toward venter (Fig. 85*c*)

18

17. Transpleural carina extending to apex of propodeal angle (Fig. 75); malar space bisected horizontally by genal carina, subgenal area not delimited; omaulus + scrobal sulcus with 1 carina

*Omalus* Panzer, p.243

Transpleural carina extending below propodeal angle (Fig. 66*d*); malar space not horizontally bisected by genal carina, subgenal area usually enclosed by a second carina (Fig. 66*b*); omaulus + scrobal sulcus enclosed by 2 carinae

*Holophris* Mocsáry, p.222

18. Scutum with large punctures clumped along notauli, or rarely irregularly scattered (Fig. 80*e, f*); malar space not bisected by genal carina.

*Philoctetes* Abeille, p.251

Scutum with large punctures clumped posteriorly between notauli (Fig. 85*d*); malar space bisected horizontally by genal carina (Fig. 85*b*)

*Pseudomalus* Ashmead, p.262

### *Adelopyga* Kimsey (Fig. 52)

*Adelopyga* Kimsey 1988c:333. Type: *Adelopyga huberi* Kimsey 1988c:334. Monobasic and orig. desig.

### Generic diagnosis

Scapal basin smooth, slightly wrinkled medially, with large punctures laterally; F-I shorter than F-II and pedicel; gena rounded behind eye; mandible with one small subapical tooth; pronotum laterally cross-ridged without discrete depression or pit; mesopleuron rounded with distinct scrobe and oblique scrobal sulcus (Fig. 52); metapleuron dorsally carinate without angular projection; propodeal posterior surface irregularly sculptured and punctate without carinae or medial enclosure, lateral angles small and broadly triangular; female with apical fore and mid tarsomeres curled, appearing prehensile, fore tarsal claws edentate, mid and hind tarsal claws with one subparallel tooth; hind coxa without dorsobasal carina; fore wing Rs tiny, less than one-sixth stigmal length, stigma apically rounded, medial vein straight; terga narrow and shallowly convex; sterna flat or shallowly convex; body with pale markings on mandibles and legs.

Male unknown.

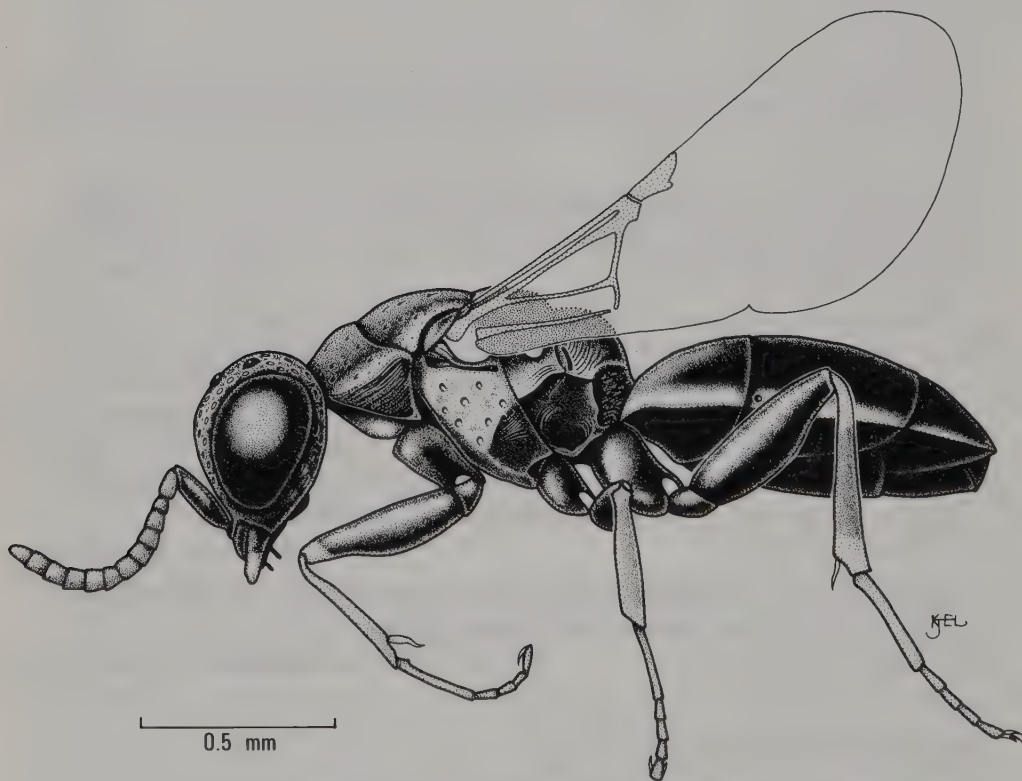


Fig. 52. *Adelopyga huberi*, female.



## Hosts

Unknown.

## Distribution

*Adelopyga* is found in Oman.

## Discussion

There are a number of small highly modified genera in the Elampini, including *Adelopyga*, *Haba*, and *Prochridium* in the Palearctic Region, and *Microchridium*, *Minymischa*, *Muesebeckidium*, *Pseudolopyga*, and *Xerochrum* in the Western Hemisphere. *Adelopyga* most closely resembles *Minymischa*, and to a lesser extent *Haba*. All three have a reduced Rs vein, and females have at least one pair of tarsi appearing prehensile. The posterior surface of the propodeum in *Adelopyga* is evenly punctate without carinae or medial enclosure, a condition also seen in *Minymischa*, *Haba*, and *Prochridium*. Several characteristics are apparently unique to *Adelopyga* in the Elampini, these are F-I shorter than the pedicel and F-II, and the female with edentate fore tarsal claws, and dentate mid and hind tarsal ones. The small Rs vein closely resembles that of *Minymischa*. *Adelopyga* was revised by Kimsey (1988c).

## Checklist of *Adelopyga*

---

*huberi* Kimsey. Palearctic: Oman.

*huberi* Kimsey 1988c:334. Holotype female; Oman: Al Mintirib, Wahiba sands (DAVIS).\*

---

## *Elampus* Spinola (Figs 53, and 54)

*Elampus* Spinola 1806:10. Type: *Chrysis panzeri* Fabricius 1804:172. Desig. by Latreille 1810:437.

*Ellampus* Agassiz 1846:135. Incorrect emendation for *Elampus* Spinola 1806.

*Notozus* Förster 1853:351. Type *Notozus frivaldszkii* Förster 1853:332 (= *Chrysis panzeri* Fabricius 1804). Desig. by Ashmead 1902:228.

## Generic diagnosis

Facial setae scattered and erect; scapal basin nearly flat (Fig. 54a, b); malar space less than 1 MOD long; female with erect dense fringe of setae along gena (Fig. 54c); head generally lenticular, carinate, and angulate behind eyes; scutum and scutellum regularly and generally densely punctate; metanotum with large flat medial projection or mucro (Fig. 53); mesopleuron strongly projecting anterolaterally, with well-developed omaulus and scrobal carina forming sharp ventral angle (Fig. 53); fore femur with ventral carina and often sub-basally angulate (Fig. 54e); tarsal claws with 1–5 sub-



Fig. 53. *Elampus panzeri*, female.

sidiary teeth (Fig. 54d); fore wing medial vein strongly arched, arising at or slightly before cu-a, stigma short, broad, and apically rounded (Fig. 53); T-III produced into apical, more or less membrane-filled, snout (Fig. 54b-d), and lateral margin sinuate; digitus and cuspis long and slender (Fig. 54g).

### Distribution

This genus is found in most zoogeographic areas except the Australian and Oriental Regions. There are 8 species in North America, 3 neotropical ones, 5 African and 41 in the Palearctic Region.

### Hosts

*Elampus* apparently parasitize ground-nesting Sphecidae. Krombein (1967) reported *E. viridicyaneus* on *Hoplisoides costalis* (Cresson). *Mimesa* has also been given as the host of *E. panzeri* by Spooner (1948), Mocsáry (1889), and Móczár (1967a). Rosenheim and

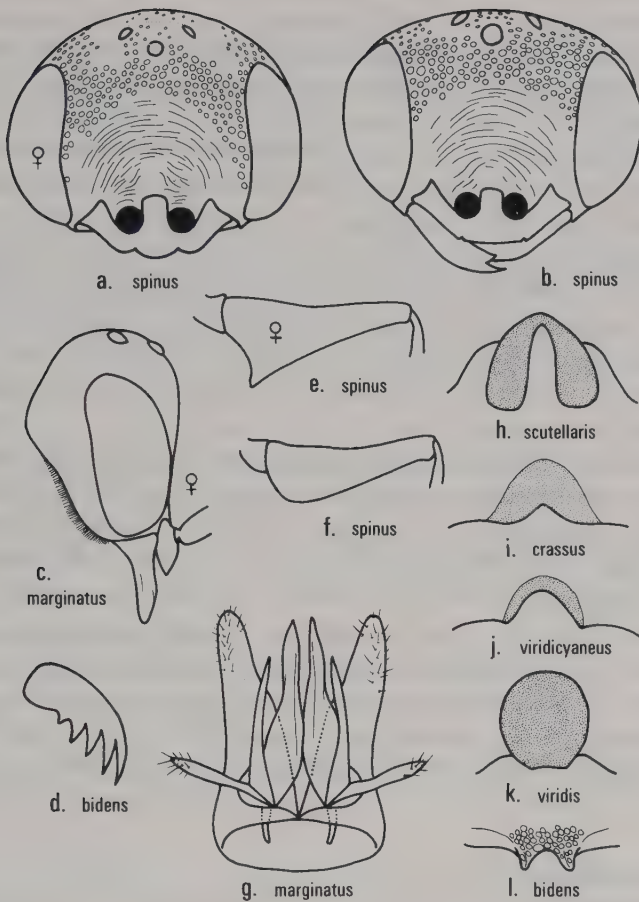


Fig. 54. *Elampus* (a), (b) face; (c) head, lateral; (d) hind tarsal claw; (e), (f) fore femur, lateral; (g) male genital capsule; and (h)–(l), T-III apical snout. Male, except as indicated.

Grace (1987) reared *viridicyaneus* from cells of *Mimumesa mixta* (W. Fox).

## Discussion

*Elampus* can be distinguished by the mucronate metanotum, T-III produced into an apical snout-like structure, scutum evenly and often densely punctate, female with a short and even genal fringe, the fore wing with medial vein strongly arched, and stigma short and apically rounded.

Most closely related to the *Omalus* line (see Fig.51), both have the same wing venation, the medial cell asetose, a strongly carinate mesopleuron, and posteriorly angulate head. In many species the head is almost lenticular. There are several

*Philoctetes* that resemble *Elampus*, having an apical snout on T-III and a mucronate metanotum.

*Elampus* consists of 63 closely related species. Species distinctions are based on facial and flagellar dimensions, shape of the fore femur, and modifications of T-III. The shape of the apical snout on T-III and the extent of the apical membrane is particularly useful. Colour is important but must be used with some caution. It is not uncommon to see both green and brassy or coppery individuals in the same species. In several species, including *viridis*, the snout membrane is nearly circular without emargination (Fig. 54*k*). One species, *bidens*, lacks a true snout, and the apex of T-III is bent under with two submedial teeth (Fig. 54*l*). Several species, including *guillarmodi*, *bidens*, and *scutellaris*, have the fore femur strongly elbowed. Many Palearctic species tend to be bicoloured, with the head and thorax blue, green, or purple and the abdomen brassy or coppery red. In a few species, including *versicolor* and *namibiensis*, the snout membrane is red.

There is a certain amount of sexual dimorphism in this group. The most obvious difference is the genal fringe always found in females (Fig. 54*c*). Males only have a few long irregularly spaced setae in the same position. Females also tend to be more extremely modified than males (Fig. 54*a, b*). If the male fore femur is sub-basally elbowed in a species (Fig. 54*f*), the female fore femur probably has an elongate sub-basal tooth (Fig. 54*e*). This dimorphism has resulted in a certain amount of synonymy, with conspecific males and females given different names.

There has been no overall treatment of *Elampus*, only a number of regional revisions, including: North America (Bohart and Kimsey 1982, Huber and Pengelly 1978), Afrotropical species (Kimsey 1988a), and those of Europe (Linsenmaier 1959*a, b*, 1987).

## Checklist of *Elampus*

---

*aequinoctialis* (Ducke). Neotropical: Brazil.

*aequinoctialis* (Ducke) 1901:359. (*Elampus*). Syntype females; Brazil: Pará (BELEM, PARIS).

*albipennis* Mocsáry. Palearctic: s Europe, w Asia, Middle East.

*albipennis* Mocsáry 1889:80. Lectotype male (desig. Móczár 1964*b*); Russian SFSR: Sarepta, Astrahan (BUDAPEST).\*

*ambiguus* Dahlbom. Palearctic: s Europe.

*ambiguus* Dahlbom 1854:41. Holotype; Italy (LUND ?).

*assamensis* (Mocsáry). Palearctic: n India.

*assamensis* (Mocsáry) 1911*b*:443. (*Elampus*). Holotype male; India: Assam, Shilong (BUDAPEST).\*

*bidens* (Förster) Palearctic: s Europe, w Asia, Siberia.



- bidens* (Förster) 1853:335. (*Notozus*). Holotype female; Poland: Silesia (BERLIN).  
*femoralis* Eversmann 1857:547. Type ?; Russian SFSR: 'Ural, Prov. Casanensis' (KRAKOW?).  
*superbus* (Abeille) 1878:1. (*Omalus*). Holotype; France (PARIS ?).  
*tristis* Tsuneki 1970a:32. (*bidens* ssp.). Holotype female; Japan: Sapporo (TSUKUBA ?).
- bipartitus* (Tournier). Palaearctic: Switzerland.  
*bipartitus* (Tournier) 1879:91. (*Notozus*). Holotype male; Switzerland: Peney (GENEVA).
- bischoffi* Kimsey. Palaearctic: nw China.  
*spinosus* (Bischoff) 1910:436. (*Notozus*). Syntype male, female; China: Sinkiang, Tschakar (BERLIN). Nec Provancher 1881.  
*bischoffi* Kimsey. N. repl. name for *spinosus* Bischoff 1910.
- caeruleus* Dahlbom. Palaearctic: Europe.  
*caeruleus* Dahlbom 1854:46. Syntypes; Germany: Tauria, Berlin; Austria: Prussia (BERLIN).  
*viridiventris* (Abeille) 1878:2. (*Omalus*). Holotype; France (PARIS ?).
- cecchimiae* (Semenov). Palaearctic: s USSR.  
*cecchimiae* (Semenov) 1967:120. (*Notozus*). Holotype male; Turkmen SSR: Sary-Jazy (LENINGRAD).
- chrysonotus* Dahlbom. Palaearctic: Turkey.  
*chrysonotus* Dahlbom 1854:44. Holotype; Turkey (Mus. Drowsen).
- crassus* (Edney). Afrotropical: South Africa.  
*crassus* (Edney) 1940:37. (*Notozus*). Lectotype male (desig. Kimsey herein); South Africa: Cape Prov., Montagu (LONDON).\*
- cubanus* Huber. Nearctic: Cuba.  
*cubanus* Huber (in Huber and Pengelly) 1980:49. Holotype female; Cuba: Guane P. Rio (OTTAWA).
- cupratus* (Mocsáry). Palaearctic: s USSR.  
*cupratus* (Mocsáry) 1911b:443. (*Ellampus*). Holotype female; Kirghiz SSR: Naryn (BUDAPEST).\*
- decorsei* (Buysson). Palaearctic: North Africa (Chad).  
*decorsei* (Buysson) 1904:253. (*Notozus*). Holotype female; Chad: Bas Chari, Ft. Lamy (PARIS).\*
- discedens* (Zimmermann). Palaearctic: Egypt.  
*discedens* (Zimmermann) 1940:31. (*Notozus*). Holotype male; Egypt: Abu Rawash (CAIRO?).
- eversmanni* Mocsáry. Palaearctic: s and sw USSR.  
*ambiguus* Eversmann 1857:549. Type ?; Russian SFSR: Saratov (KRAKOW ?). Nec Dahlbom 1854.

*eversmanni* Mocsáry 1889:80. Repl. name for *ambiguus* Eversmann 1857.

*foveatus* (Mocsáry). Palaearctic: se Europe.

*foveatus* (Mocsáry) 1914:1. (*Ellampus*). Lectotype male (desig. Móczár 1964b); Yugoslavia: Bosnia (BUDAPEST).\*

*gayi* (Spinola). Neotropical: Chile.

*gayi* (Spinola) 1851:413. (*Notozus*). Syntype males; Chile (PARIS).\*

*guillarmodi* Kimsey. Afrotropical: Namibia.

*guillarmodi* Kimsey 1988a:2. Holotype female; Namibia: Vaalbank (CAPE TOWN).\*

*hyalinus* (Aaron). Nearctic: widespread.

*hyalinus* (Aaron) 1885:218. (*Notozus*). Lectotype female (desig. Cresson 1928); USA: Montana (PHILADELPHIA).\*

*byrcanus* (Semenov). Palaearctic: Iran.

*byrcanus* (Semenov) 1967:126. (*Notozus*). Holotype male; Iran: Astrabad (LENINGRAD).\*

*jakovlevi* (Semenov). Palaearctic: s USSR.

*jakovlevi* (Semenov) 1967:121. (*Notozus*). Holotype male; Kazakh SSR: Shipovo Station (LENINGRAD).\*

*kashmirensis* (Nurse). Palaearctic: nw India.

*kashmirensis* (Nurse) 1902:305. (*Notozus*). Lectotype male (desig. Kimsey 1986c); India: Kashmir (LONDON).\*

*komarowi* (Radoszkowski). Palaearctic: s USSR.

*komarowi* (Radoszkowski) 1893a:79. (*Notozus*). Holotype; USSR: Mary ('Merv') (KRAKOW ?).

*konowi* (Buysson). Palaearctic: Europe.

*konowi* (Buysson) (In André) 1892:102. (*Notozus*). Holotype female; Germany, Furstenberg (PARIS).\*

*madecassus* (Zimmermann). Afrotropical: Madagascar.

*madecassus* (Zimmermann) 1961b:298. (*Notozus*). Holotype male; Madagascar: Behara (PARIS).\*

*marginatus* Patton. Nearctic: widespread, Neotropical: Mexico to El Salvador.

*marginatus* Patton 1879:66. Neotype female (desig. Huber and Pengelly 1978); USA: Connecticut, E. Hartford (ITHACA).\*

*mocsaryi* Radoszkowski. Palaearctic: Mongolia.

*mocsaryi* Radoszkowski 1887:45. Holotype female; Mongolia: Zaidam (KRAKOW ?).

*montanus* (Mocsáry). Palaearctic: Turkey.

*montanus* (Mocsáry) 1890:49. (*Ellampus*). Holotype male; Turkey: Buyuk Agri Dagı (Mount Ararat) (KRAKOW ?).

*musabinus* (Tsuneki). Palaearctic: Japan.

*musabinus* (Tsuneki) 1986:1. (*Omalus*). Holotype male; Japan: Saitama Pref., Cotoy Toda near Tokyo (TSUKUBA ?).

*namibiensis* Kimsey. Afrotropical: Namibia.

*namibiensis* Kimsey 1988a:4. Holotype female; Namibia: Namib Desert (DAVIS).\*

*nitidus* (Aaron). Nearctic: w USA, sw Canada, Mexico, Neotropical: Mexico to El Salvador.

*nitidus* (Aaron) 1885:218. (*Notozus*). Lectotype male (desig. Cresson 1928); USA: Montana (PHILADELPHIA).\*

*mexicanus* Mocsáry 1889:72. Lectotype male (desig. Huber and Pengelly 1978); Mexico: Anganguco (GENEVA).

*californicus* Huber and Pengelly 1978:97. (*nitidus* ssp.). Holotype male; USA: California, 'Cala' (PHILADELPHIA).\*\*

*obesus* (Mocsáry). Palaearctic: s USSR.

*obesus* (Mocsáry) 1890:48. (*Ellampus*). Holotype male; USSR: 'Turcomania' (KRAKOW ?).

*pallasi* (Semenov). Palaearctic: s USSR.

*pallasi* (Semenov) 1967:123. (*Notozus*). Holotype female; Kazakh SSR: Zaysan (LENINGRAD).\*

*particeps* (Buysson). Palaearctic: e Europe.

*particeps* (Buysson) (In Andre) 1892:105. (*Notozus*). Holotype female; 'Konow' (PARIS).\*

*petri* (Semenov). Palaearctic: sw USSR (Russia).

*petri* (Semenov) 1967:122. (*Notozus*). Holotype female; Russian SFSR: Ryazan, Khover (LENINGRAD).\*

*pliginskii* (Semenov). Palaearctic: sw USSR (Georgia).

*pliginskii* (Semenov) 1967:124. (*Notozus*). Holotype male; Georgian SSR: Tbilisi (LENINGRAD).\*

*puertoricensis* Huber. Nearctic: Puerto Rico.

*puertoricensis* Huber (in Huber and Pengelly) 1980:47. Holotype female; Puerto Rico: Lajas (WASHINGTON).

*pulchricollis* (Ducke). Neotropical: Brazil.

*pulchricollis* (Ducke) 1911:113. (*Ellampus*). Holotype female; Brazil: Belem (BELEM).

*putoni* (Buysson). Palaearctic: Europe.

*putoni* (Buysson) (In André) 1892:108. (*Notozus*). Holotype male; France: 'Basses-Alpes' (PARIS).\*

*pyrosomus* (Förster). Palaearctic: se Europe.

*pyrosomus* (Förster) 1853:333. (*Notozus*). Holotype male; Hungary (BERLIN).

- purpureus* (Móczár) 1964b:446. (*Notozus pyrosomus* var.). Holotype female; Hungary: Tiszasuly (BUDAPEST).
- retusus* (Semenov). Palaearctic: sw USSR (Russia).
- retusus* (Semenov) 1967:124. (*Notozus*). Holotype male; Russian SFSR: Argaly (LENINGRAD).\*
- rufitarsis* (Tournier). Palaearctic: sw USSR (Russia).
- rufitarsis* (Tournier) 1879:90. (*Notozus*). Syntype male, females; Russian SFSR: Sarepta (GENEVA).
- sanzii* Gogorza. Palaearctic: s Europe, Turkey, s USSR, Middle East.
- sanzii* Gogorza 1887:33. Holotype male; Spain: Madrid (MADRID).
- schmidtianus* (Semenov). Palaearctic: s USSR, nw China.
- schmidtianus* (Semenov) 1967:124. (*Notozus*). Holotype female; China: Gashun Gobi, Sandzhou oasis (LENINGRAD).\*
- korzhinskii* (Semenov) 1967:125. (*Notozus*). Holotype female; Kirghiz SSR: Gul'chi (LENINGRAD). N. synonymy.\*
- scutellaris* Panzer. Palaearctic: widespread.
- scutellaris* Panzer 1798: F-51 T-11. Type ?; Germany (BERLIN ?).
- panzeri* (Fabricius) 1804:172. (*Chrysis*). Type ?; Germany (Lost ?).
- constrictus* (Förster) 1853:336. (*Notozus*). Holotype male; Germany: Aachen (BERLIN).
- affinis* (Schenck) 1856:64. (*Notozus*). Holotype; Germany: Nassau (FRANKFURT ?).
- elongatus* (Schenck) 1856:65. (*Notozus*). Holotype; Germany: Nassau (FRANKFURT ?).
- minutulus* (Schenck) 1856:66. (*Notozus*). Holotype ?; Germany: Nassau (FRANKFURT ?).
- pulchellus* (Schenck) 1856:66. (*Notozus*). Holotype; Germany: Nassau (FRANKFURT ?).
- koblii* (Mocsáry) 1889:70. (*Ellampus*). Neotype male (desig. Móczár 1964b); Hungary: Budapest (BUDAPEST).\*
- angustatus* (Mocsáry) 1889:75. (*Ellampus*). Lectotype male (desig. Móczár 1964b); Hungary: Budapest (BUDAPEST).\*
- olgae* (Semenov) 1891a:383. (*Ellampus*). Lectotype female (desig. Kimsey 1986c); 'Russia: Dankowensi, Rjazanensis Prov., Kazatschji' (LENINGRAD). N. synonymy.\*
- unicolor* (Trautmann) 1927:28. (*Notozus constrictus* var.). Syntypes; 'Sudrussland' (BERLIN).
- senegalensis* Kimsey. Afrotropical: Senegal.
- senegalensis* Kimsey 1988a:4. Holotype male; Senegal: Dakar (WASHINGTON).\*
- sidus* (Semenov). Palaearctic: Iran.
- sidus* (Semenov) 1967:121. (*Notozus*). Holotype male; Iran: Shakhroud (LENINGRAD).\*
- soror* (Mocsáry). Palaearctic: se Europe.
- soror* (Mocsáry) 1889:68. (*Ellampus*). Neotype female (desig. Móczár 1964b); Hungary: Budapest (BUDAPEST).\*



*spinifemoris* (Móczár). Palaearctic: Mongolia.

*spinifemoris* (Móczár) 1967b:184. (*Notozus*). Holotype female; Mongolia: Uburchangaj aimak, Arc Budd ul, 20 km s Somon Chovd (BUDAPEST).

*spinipes* (Mocsáry). Palaearctic: Mongolia.

*spinipes* (Mocsáry) 1890:49. (*Ellampus*). Holotype female; Mongolia: Ta-Wan (KRAKOW ?).

*spinus* (Lepeletier). Palaearctic: s Europe, w Asia.

*spinus* (Lepeletier) 1806:121. (*Hedychrum*). Holotype male; France: Meudon (PARIS ?).

*frivaldskyi* (Förster) 1853:332. (*Notozus*). Syntypes; Hungary (BERLIN).

*productus* Dahlbom 1854:44. Syntypes; Portugal: Lusitania, France (Mus. ?).

*longicornis* (Tournier) 1889:185. (*Notozus*). Holotype male; Switzerland: Peney (Mus. ?).

*mutans* (Buysson) (In André) 1896:702. (*Notozus productus* var.) Holotype female; Italy: Turin (GENOA ?).

*vulgata* (Buysson) (In Andre) 1892:100. (*Notozus productus* var.). Syntype male, female; France, Belgium, Germany, USSR, Greece, Switzerland (PARIS ?).

*subtilis* (Edney). Afrotropical: Zimbabwe.

*subtilis* (Edney) 1940:38. (*Notozus*). Holotype female; Zimbabwe: 90 mi w Bulawayo (CAPE TOWN).\*

*tauricus* (Semenov). Palaearctic: sw USSR (Russia).

*tauricus* (Semenov) 1967:124. (*Notozus*). Holotype female; Russian SFSR: 'Crimea', Sebastopol (LENINGRAD).\*

*tournieri* Dalla Torre. Palaearctic: sw USSR (Russia).

*viridis* (Tournier) 1890:1. (*Notozus*). Syntypes; Russian SFSR: Sarepta (Mus. ?). Nec Cresson 1865a.

*tournieri* Dalla Torre 1892:93. Repl. name for *viridis* Tournier 1890.

*turcmenicus* (Linsenmaier). Palaearctic: s USSR.

*turcmenicus* (Linsenmaier) 1968:13. (*Notozus*). Holotype female; Turkmen SSR: Ashkhabad (LUZERN).

*ussuriensis* (Semenov). Palaearctic: sw USSR (Russia).

*ussuriensis* (Semenov) 1967:126. Holotype female; Russian SFSR: Rimorski kray, Vladivostok (LENINGRAD ?).

*uvarovi* (Semenov). Palaearctic: s USSR.

*uvarovi* (Semenov) 1967:125. (*Notozus*). Holotype female; Tadzhik SSR: Karategin range (LENINGRAD ?).

*versicolor* Norton. Nearctic: w USA, nw Mexico.

*versicolor* Norton 1879:235. Holotype male; USA: 'Dacota' (PHILADELPHIA).\*

*productus* (Aaron) 1885:219. (*Notozus*). Lectotype male (desig. Cresson 1928); USA: Montana (PHILADELPHIA). Nec Dahlbom 1845.\*

*aaroni* (Bodenstein) 1951:719. (*Ellampus*). Repl. name for *productus* Aaron 1885.

*violascens* (Mocsáry). Palaearctic: s USSR.

*violascens* (Mocsáry) 1889:81. (*Ellampus*). Holotype female; Uzbek SSR: Taschkent (KRAKOW ?).

*viridicyaneus* Norton. Nearctic: USA, s Canada, widespread.

*viridicyaneus* Norton 1879:235. Holotype female; USA: Massachusetts (PHILADELPHIA).\*

*spinosus* Provancher 1881:302. Holotype female; Canada: Quebec (QUEBEC).

*connexus* (Viereck) 1906:192. (*Notozus*). Holotype male; USA: Kansas, Clark Co., (LAWRENCE).

*viridis* Cresson. Nearctic: USA, n Mexico, Cuba.

*viridis* Cresson 1865a:103. Holotype; Cuba (PHILADELPHIA).

*rotundus* Huber and Pengelly 1978:92. Holotype male; USA: California, Imperial Co. (DAVIS).\*

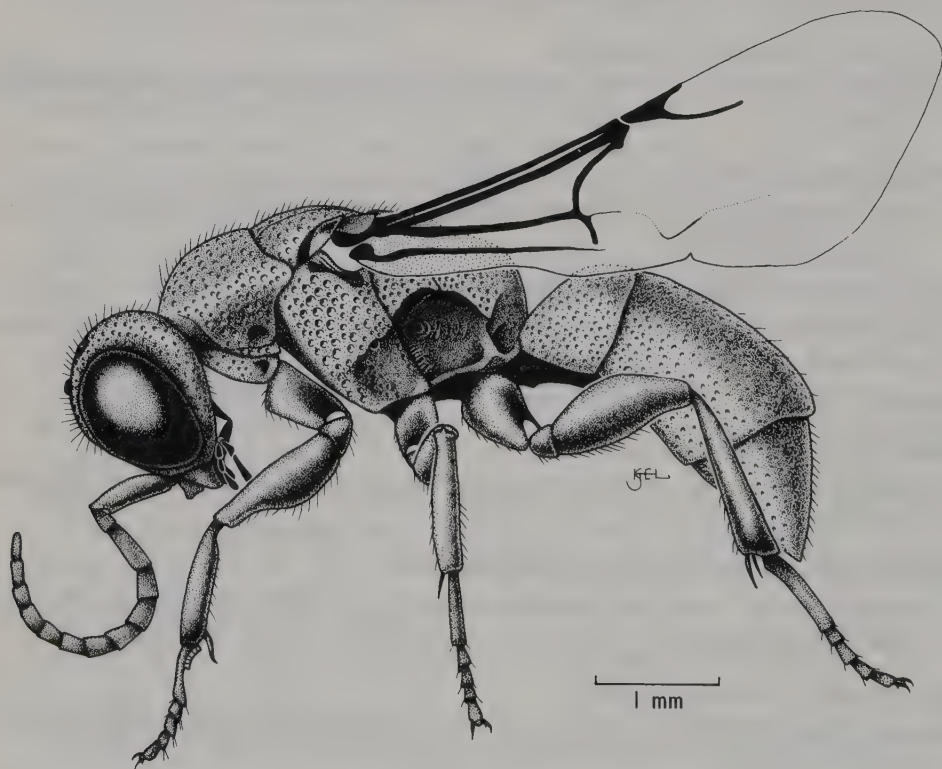


Fig. 55. *Exallopysga guatemalense*, female.

*yasumatsui* (Tsuneki). Palaearctic: China.

*yasumatsui* (Tsuneki) 1948:116. (*Notozus*). Holotype female; China: Shansi, Yuankii (KYUSHU).

## *Exallopyga* French (Figs 55 and 56)

*Exallopyga* French 1985:620. Type: *Hedychrum jenseni* Buysson 1901:196. Orig. desig.

### Generic diagnosis

Face with sparse erect setae; malar space less than 1 MOD; scapal basin shallow and medially cross-ridged (Fig. 56a); pronotum with short sublateral carinae along anterior margin; scutum with notauli deeply impressed; mesopleuron rounded, with short

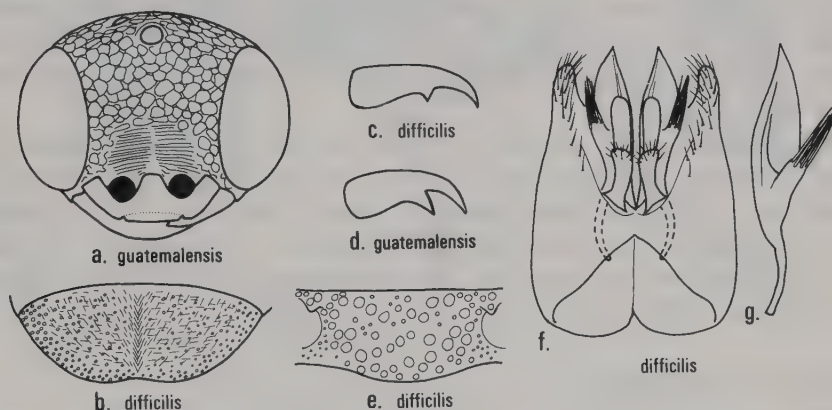


Fig. 56. *Exallopyga*, male, (a) face; (b) T-III, dorsal; (c), (d) hind tarsal claw; (e) scutellum, dorsal; (f) genital capsule; (g) detail of aedeagus.

scrobal sulcus and without omaulus or scrobal carina (Fig. 55); scutellar wing fossa with anterior lobe (Fig. 56e); mid and hind tibia without pits on inner surface; tarsal claws either apically bifid (Fig. 56c) or with submedial perpendicular tooth (Fig. 56d); fore wing medial vein strongly arched, arising at cu-a (Fig. 55); T-III long and evenly punctate, apical margin evenly rounded or slightly indented medially in females, or medially flattened and coriaceous-micropunctate, with narrow medial stripe of appressed setae and apical margin medially emarginate in males (Fig. 56b); aedeagus with large, apically spinose lateral lobe (Fig. 56f, g).

### Hosts

Unknown.

## Distribution

This genus occurs in the Neotropical Region, from Guatemala to Chile and Argentina.

## Discussion

*Exallopyga* can be distinguished from *Hedychrum* and *Hedychridium* by a number of derived characteristics: the scutellum has a lobe adjacent to the wing, T-III sculpture and setation are sexually dimorphic, and the aedeagus has spinose lateral lobes. Other diagnostic features are the slender and apically acute fore wing stigma, arched medial vein, and tarsal claw with one subsidiary tooth. The tarsal claw dentition is unusual in this genus, *guatemalensis* and *difficilis* have the tooth subapical and perpendicular, in *jenseni* the claw appears bifid with the tooth subparallel.

*Exallopyga* is probably most closely related to *Hedychridium*, based on the unmodified female S-III, legs and gena, and the presence of an anterolateral pronotal carina. One *Exallopyga* species has tarsal claw dentition similar to *Hedychrum* but this is only a superficial resemblance since otherwise *Exallopyga* lacks all the derived characteristics of *Hedychrum*.

The sexes can be readily separated by the structure of T-III. In males T-III is somewhat depressed medially, the depressed area finely punctate, with coriaceous interspaces and a stripe of dense appressed setae. In addition, T-III is subapically swollen, coarsely punctate, and medially emarginate. The female T-III may be apicomediaally indented or emarginate but is otherwise unmodified. *Exallopyga* was revised by French (1985).

## Checklist of *Exallopyga*

---

*difficilis* (Spinola). Neotropical: Chile.

*difficilis* (Spinola) 1851:411. (*Hedychridium*). Holotype female (sex now undeterminable); Chile (PARIS).\*

*carinulata* (Spinola) 1851:411. (*Hedychrum*). Holotype female; Chile (PARIS). Nec Schenck 1861.\*

*novarae* (Mocsáry) 1889:124. (*Holopyga*). Holotype male; Chile (VIENNA).\*

*suturalis* (Mocsáry) 1889:140. (*Holopyga*). Holotype female; Chile: Concepcion (BUDAPEST).\*

*guatemalensis* (Cameron). Neotropical: Guatemala to Argentina.

*guatemalensis* (Cameron) 1888:459. (*Hedychridium*). Lectotype female (desig. French 1985); Guatemala: Zapote (LONDON).\*

*andrei* (Mocsáry) 1889:215. (*Chrysis*). Holotype male; Brazil (PARIS).\*

*kobli* (Buysson) 1901:100. (*Holopyga*). Holotype female; Brazil: Winthem (PARIS).\*

*pallidolimbata* (Ducke) 1903:133. (*Holopyga*). Holotype female; Brazil: Itaituba (PARIS).\*

*jenseni* (Buysson). Neotropical: Argentina.



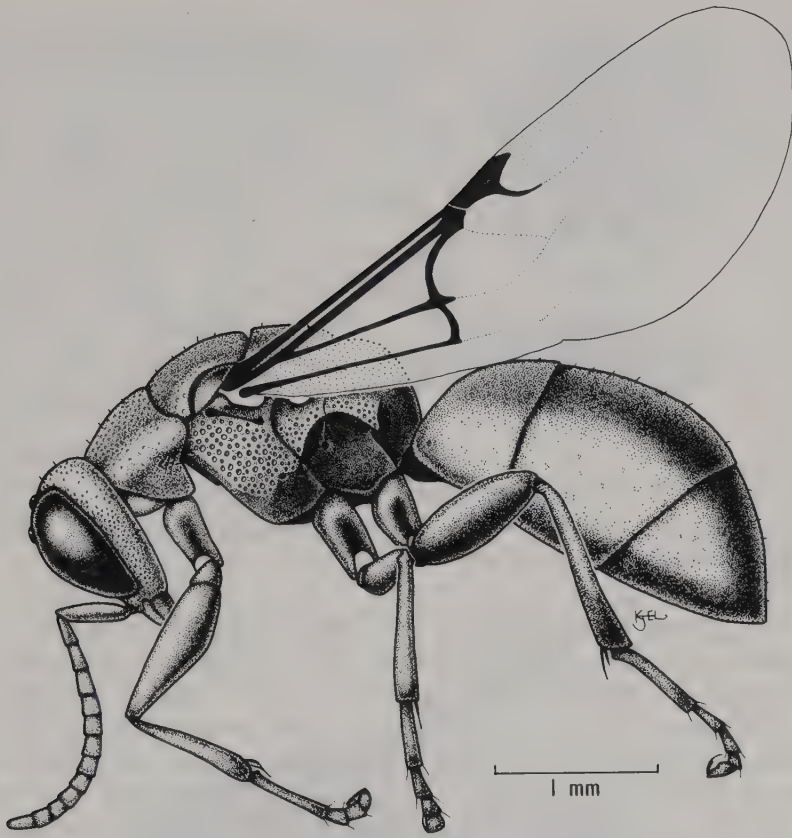


Fig. 57. *Haba almasyana*, female.

*jenseni* (Buysson) 1909:196. (*Hedychrum*). Lectotype female (desig. French 1985); Argentina: Mendoza (PARIS).\*

*discoidalis* (Buysson) 1909:197. (*Hedychrum*). Lectotype male (desig. French 1985); Argentina: Mendoza (PARIS).\*

---

### *Haba* Semenov (Figs 57 and 58)

*Haba* Semenov 1954b:143. Type: *Holopyga almasyana* Mocsáry 1911b:445. Monobasic and orig. desig.

### Generic diagnosis

Face with scattered erect setae; scapal basin flat (Fig. 58a); pronotum gently rounded, without anterior declivity or pit; mesopleuron rounded, with short scrobal groove and

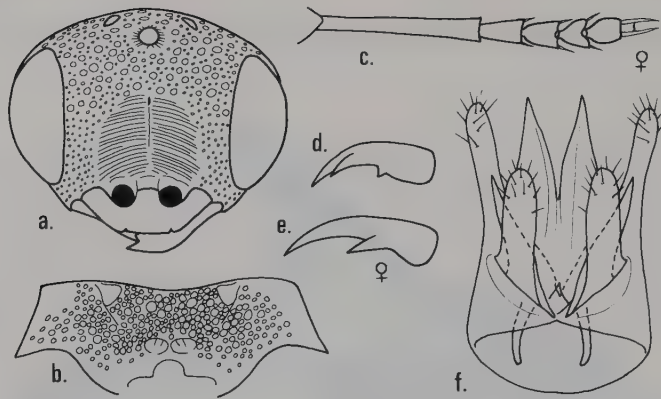


Fig. 58. *Haba almasyana*. (a) face; (b) propodeum, posterior face; (c) mid tarsus; (d), (e) hind tarsal claw; and (f) genital capsule, ventral. Male, except as indicated.

without scrobal carina or omaulus (Fig. 57); propodeum evenly punctate medially, without distinct sculpturing or carinae (Fig. 58b); fore wing medial vein strongly arched, arising at or slightly before cu-a, stigma short and apically forming an acute angle on costal margin (Fig. 57); mid and hind tibia without pits on inner surface; female tarsal claws long and slender, with one subparallel basal tooth (Fig. 58e), held folded against apical tarsomere, which is curled up against adjacent tarsomeres (Fig. 58c); tarsomeres flattened; male claws with submedial perpendicular tooth and subapically bifid (Fig. 58d); fore basitarsis unusually long and slender, 9 times as long as broad.

## Hosts

Unknown.

## Distribution

Individuals have been collected in Tunisia and Kazakh SSR.

## Discussion

One of the most distinctive features of *Haba* is the prehensile-appearing female tarsomeres. Unlike other genera with this trait, such as *Minymischa* and *Muesebeckidium*, the fore, mid, and hind tarsomeres are all involved in *Haba*. Other diagnostic features include the gently rounded, ecarinate mesopleuron, tarsal claw with one subparallel tooth near the base, fore basitarsis unusually long, fore wing medial vein strongly arched, and propodeum without posteromedial carinae or enclosures. The tarsal claw

dentition is unusual because other elampines with a subparallel tooth have it located subapically. The prehensile tarsomeres, propodeal sculpturing, and mesopleural shape indicate a close relationship with *Adelopyga*.

Although three species are listed for *Haba* the types seem rather similar and some synonymy may be necessary. However, more material is needed for study before this can be done.

### Checklist of *Haba*

---

*almasyana* (Mocsáry). Palaearctic: s USSR.

*almasyana* (Mocsáry) 1911b:445. (*Holopyga*). Lectotype female (desig. French 1986); Kirghiz SSR: Naryn (BUDAPEST).\*

*biroi* (Mocsáry). Palaearctic: North Africa (Tunisia).

*biroi* (Mocsáry) 1911b:447. (*Holopyga*). Holotype female; Tunisia: Gafsa (BUDAPEST).\*

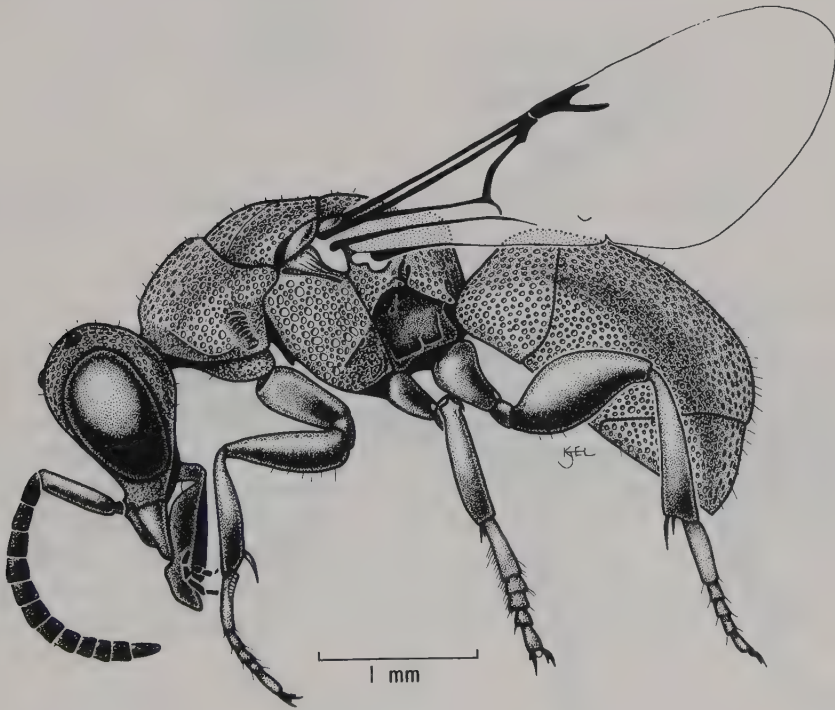


Fig. 59. *Hedychreides mirum*, male.

*subtilis* (Mocsáry). Palearctic: s USSR.

*subtilis* (Mocsáry) 1914:4 (*Holopyga*). Holotype male; Uzbek SSR: Tashkent (BUDAPEST).\*

### *Hedychreides* Bohart (Figs 59 and 60)

*Hedychreides* Bohart 1980:134. Type: *Hedychreides mirum* Bohart 1980:135. Monobasic and orig. desig.

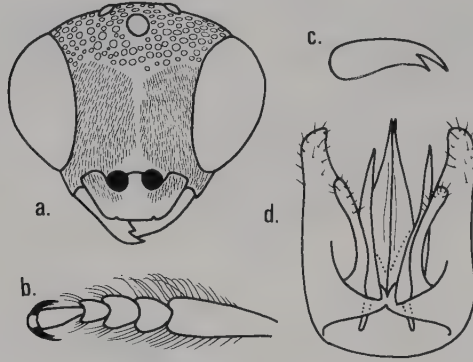


Fig. 60. *Hedychreides mirum*, male. (a) face; (b) mid tarsus; (c) hind tarsal claw; and (d) genital capsule, ventral.

### Generic diagnosis

Scapal basin flat or shallowly convex with contiguous fine punctures and covered with dense appressed silver setae (Fig. 60a); malar space 1 MOD; pronotal anterior margin with faint anterolateral carina; mesopleuron rounded, without omaulus or scrobal carina (Fig. 59); notauli sulciform; scutellar wing fossa without anterior lobe; mid and hind tibia with large, dark, shallow depression on inner surface; male mid tarsomeres laterally expanded and flattened, with long curved marginal setae (Fig. 60b); tarsal claws apically bifid (Fig. 60c); fore wing medial vein slightly curved, arising at cu-a, stigma slender and apically acute (Fig. 59); T-III apical margin evenly rounded, slightly reflexed with hyaline rim; volsella divided into digitus and cuspis (Fig. 60d).

### Hosts

Unknown.

### Distribution

This monotypic genus occurs in western North America.



## Discussion

The relationships between *Hedychreides* and other elampine genera are difficult to ascertain. Superficially, this genus most closely resembles several sympatric *Hedychridium* species, including *amabile* and *cockerelli*, based on the coloration and dense silver setae on the face. The tarsal claw dentition and mid and hind tibial pits suggest a relationship with *Hedychrum*. However, the facial setation and sculpturing, and traces of pronotal carinae are the only derived characteristics shared by *Hedychreides* and *Hedychridium*. The relatively unmodified wing venation clearly distinguishes *Hedychreides* from genera related to *Holopyga*.

The apically bifid tarsal claws, broad shallow pits on the inner surface of the mid and hind tibiae, scapal basin with disjunct fine punctation and dense silvery setae, rounded mesopleuron, and apically acute stigma are diagnostic features for *Hedychreides*. In addition, the oddly flattened and setose male tarsomeres occur nowhere else in the Chrysididae. Little is known about this monotypic genus. *Hedychreides* was reviewed by Bohart (1980) and Bohart and Kimsey (1982).



Fig. 61. *Hedychridium ardens*, male.

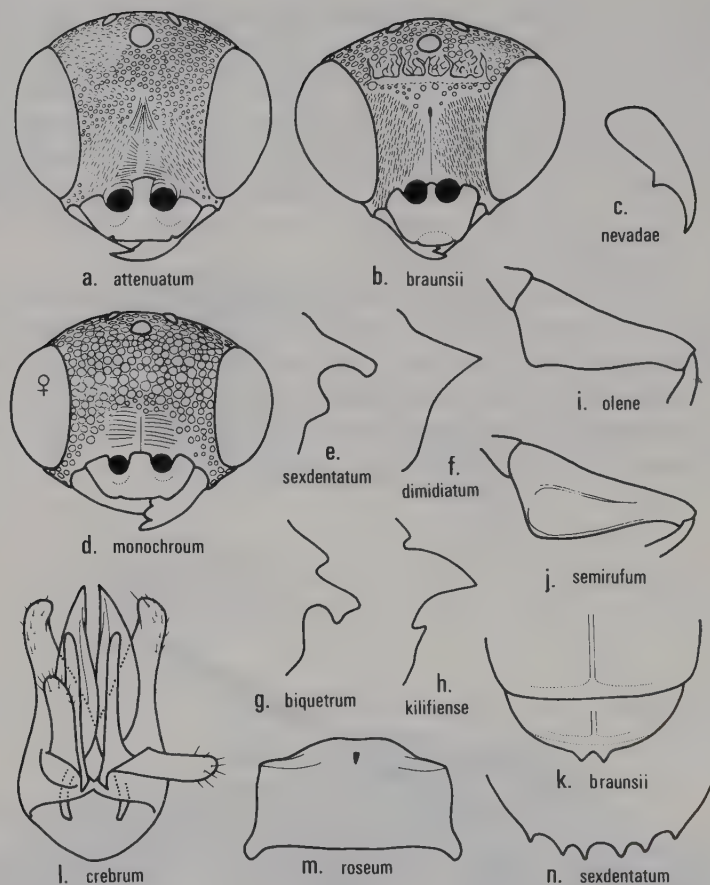


Fig. 62. *Hedychridium*. (a), (b), (d) face; (c) hind tarsal claw; (e)–(h), propodeal angle; (i), (j) fore femur; (k) T-II–III, dorsal; (l) genital capsule, ventral; (m) pronotum, dorsal; and (n) T-III, apical rim. Male, except as indicated.

### Checklist of *Hedychreides*

*mirum* Bohart. Nearctic: w USA (California, Nevada).

*mirum* Bohart 1980:135. Holotype male; USA: California, Inyo Co., Lone Pine (DAVIS).\*

### *Hedychridium* Abeille (Figs 61 and 62)

*Hedychridium* Abeille 1878:3. Type: *Hedychrum minutum* Lepeletier 1806:122 (= *Chrysis ardens* Coquebert 1801:59). Desig. by Ashmead 1902:227.

- Buyssonina* Mocsáry 1902b:536. Type: *Hedychridium dybowskii* Buysson 1898b:520. Monobasic.
- Acrotoma* Mocsáry 1902b:537. Type: *Acrotoma braunsii* Mocsáry 1902b:537. Monobasic. Nec Boettger 1881. N. synonymy.
- Hexachridium* Bischoff 1913:16. Type: *Hexachridium sexdentatum* Buysson 1898b:520. Monobasic. N. synonymy.
- Tetrachridium* Zimmermann 1952:358. Type: *Tetrachridium zavattari* Zimmermann 1952:359. Monobasic.
- Euchridium* Semenov 1954a:96. Type: *Euchridium trossulum* Semenov 1954a. Monobasic.
- Cyrteuchridium* Semenov 1954a:100. Type: *Cyrteuchridium pusio* Semenov 1954a:100. Monobasic.
- Irenula* Semenov and Nikol'skaya 1954:102. Type: *Irenula margaritacea* Semenov 1954a:102. Orig. desig. and monobasic.
- Euchrum* Semenov 1954a:103. Type: *Chrysis carnea* Rossi 1790:75. (= *Hedychridium roseum* Rossi 1790). Orig. desig.
- Zarudnidium* Semenov 1954a:104. Type: *Zarudnidium sapphirinum* Semenov 1954a:104. Orig. desig.
- Zarudnium* Semenov 1954a:72. Type: *Hedychrum abeneum* Dahlbom 1854:72. Orig. desig. and monobasic.
- Cyrteuchrum* Semenov 1954a:105. Type: *Cyrteuchrum flos* Semenov 1954a:105. Orig. desig.
- Cladiola* Semenov 1954a:107. Type: *Cladiola rhodochlora* Semenov and Nikol'skaya 1954:107. Orig. desig.
- Colopyga* Semenov 1954a:137. Type: *Hedychrum flavipes* Eversmann 1857:552. Orig. desig.
- Actineuchrum* Semenov 1954b:141. Type: *Actineuchrum soloriens* Semenov 1954b:144. Orig. desig. and monobasic.
- Homaleuchrum* Semenov 1954b:141. Type: *Homaleuchrum smaragdinum* Semenov 1954b:143. Orig. desig. and monobasic.

### Generic diagnosis

Scapal basin flat to shallowly concave, often with dense appressed silvery pubescence and rarely with transverse frontal carina (Fig. 62a, b, d); base of oral fossa somewhat elevated; malar space usually less than 1 MOD; pronotal anterior margin with sublateral carina (Fig. 62m); mesopleuron usually rounded without omaulus or scrobal carina (Fig. 61); scutellar wing fossa without anterior lobe; mid and hind tibia rarely with pits on inner surface; tarsal claws with one submedial, perpendicular tooth

(Fig. 62c); fore wing medial vein straight to strongly arched, arising at cu-a, stigma slender and apically acute (Fig. 61); T-III usually evenly rounded, rarely with two to six apical teeth (Fig. 62k, n), apicomediaally emarginate, or drawn out medially; digitus and cuspis present (Fig. 62l).

## Hosts

Despite the large number of species in *Hedychridium* little is known about their biology. Part of this lack of information is probably because these wasps are nest parasites of ground-nesting Sphecidae and bees (Table 4).

## Distribution

This genus occurs in all zoogeographic regions except the Australian, with highest diversity in arid parts of the Holarctic and southern Africa.

Table 4. Sphecid hosts of *Hedychridium* species

Chrysidid species	Host species	Reference
<i>adventicum</i>	<i>Miscophus</i> sp.*	Linsenmaier (1959a)
<i>ardens</i>	<i>Tachysphex pompiliiformis</i> (Panz.)	Else (1973)
	<i>T. nitidus</i> Spin.	Mocsáry (1889)
<i>coriaceum</i>	<i>T. panzeri</i> Lind.	Grandi (1961)
<i>infans</i>	<i>T. panzeri</i> Lind.	
<i>monochroum</i>	<i>Solierella compedita</i> Picc.	
<i>krajniki</i>	<i>Oxybelus</i> sp.*	Linsenmaier (1959a)
<i>minutissimum</i>	<i>Miscophus</i> sp.*	
<i>purpurascens</i>	<i>Bembecinus tridens</i> (F.)	Mocsáry (1889)
<i>roseum</i>	<i>Tachysphex pompiliiformis</i>	
	(as <i>pectinipes</i> L.)	
<i>solierellae</i>	<i>Solierella blaisdelli</i> (Brid.)	Parker and Bohart (1968)
	<i>S. blaisdelli</i>	Carrillo and Caltagirone (1970)
	<i>S. peckhami</i> (Ashm.)	
<i>tsunekii</i>	<i>Astata boops</i> Sch.*	Linsenmaier (1959a)

\* These species were reported in the vicinity of the reported host nest but actual parasitism has not been confirmed.

## Discussion

*Hedychridium* is the second largest genus in the Chrysididae. It contains a diverse assemblage of species and as a result is difficult to characterize. The two features shared by all species in this group are the single perpendicular tooth on the tarsal claw and the transverse pronotal carina. Otherwise *Hedychridium* is recognized by the general



lack of the derived characteristics diagnostic for other genera. Species in this genus lack multiple teeth on the tarsal claws, prehensile tarsomeres, a scutellar tubercle projecting into the wing fossa, modified fore wing venation, female S-III with basolateral sulci, and the oral fossa with a basal tooth.

However, some features characteristic of other genera do occur in a few *Hedychridium*. The apical rim of T-III may have two (*arnoldi*, *braunsi*, *dybowskyi*, *discrepans*) (Fig. 62k), four (*zavattari*), or six (*sexdentatum*) teeth or angles (Fig. 62n). Species in the *sulcatum* group have the propodeal angle apically truncate and deeply emarginate posteriorly (Fig. 62g), much like the condition in *Spintharina*. Members of the *attenuatum* group have mid and hind tibial pits similar to those of *Hedychrum*. A few Old World species, including *dybowskyi*, have a TFC like many Chrysidini (Fig. 62b). Although most *Hedychridium* are entirely iridescent a few, including *semirufum* and *roseum*, have the abdomen largely or entirely, non-metallic red.

In addition to the modifications given above, species distinctions are based on coloration, particularly of T-II, S-II and -III, and the tegula, facial dimensions, relative dimensions of F-I-III and -V, shape of the fore femur and propodeal tooth, and sculpture of the mesopleuron. The majority of species have dense appressed silvery setae in the scapal basin, but there are many exceptions to this, including species related to *dimidiatum* and *monochroum* (Fig. 62d). In *chadense* and *margaritaceum* the integument is red with a peculiar silvery blue or green sheen. The fore wing medial vein is usually slightly curved, but in *attenuatum*, *dimidiatum*, *flavipes*, *roseum*, and *sapphirinum* it is strongly angled. The male flagellum is considerably broadened in *arietinum*. The fore femur has a strong sub-basal angle in *olene* (Fig. 62i), and species related to *sericifrons* also have a sharp dorsal and ventral carina (Fig. 62j). Most species have an acute, triangular, propodeal angle (Fig. 62f). However a variety of species including *sulcatum*, have an apically truncate angle, which is deeply emarginate posteriorly (Fig. 62g), and *dybowskyi*, *ciliatum*, and some species in the *sericifrons* groups, have a small tooth below the propodeal angle (Fig. 62e, b).

*Hedychridium* has been divided into a number of genera by Semenov (1954a, b), and species groups by Linsenmaier (1959a) and Bohart and Kimsey (1978). The majority of the Semenov genera more accurately represent species groupings than genera. Although species groups are far from precise they do make the genus easier to deal with.

We had considered giving species groups for *Hedychridium* to provide more information about this difficult genus. However, we have only been able to study types or reliably identified specimens of fewer than half the species. We have not been able to locate the repositories of a number of species described by Buysson and Abeille, or most types supposedly placed in the collection at Krakow. To further complicate matters, we have been unable to study any of the large number of types described by Linsenmaier and deposited in his collection. Further, this genus is poorly known and quite a few species are known only from the type. As a result, we feel it would be unrealistic and premature to attempt to formulate species groupings with so little information.

Some idea of related species can be gleaned from the above works of Linsenmaier, Semenov, and Bohart and Kimsey.

The *ardens* group of Linsenmaier (1959a) is characterized by the indistinct brow, scapal basin with a lateral patch of small punctures and some silvery setae, F-I 1.8–2.0 times as long as broad, medial vein strongly curved at least basally, and mesopleuron not obviously carinate. This is a large group of Palaearctic species, including: *ardens*, *brevifrons*, *buyssoni*, *bytinskii*, *coriaceum*, *cupratum*, *discordum*, *elegantulum*, *etnaense*, *femoratum*, *hybridum*, *ibericum*, *interrogatum*, *israelicum*, *jordanense*, *jucundum*, *krajnicki*, *linsenmaieri*, *marteni*, *modestum*, *perscitum*, *purpurascens*, *reticulatum*, *scintilla*, *sevillanum*, *turanicum*, *verhoeffi*, *viridisulcatum*, and *wolffi*.

Three species, *attenuatum*, *nevadae*, and *planifrons*, bear a superficial resemblance to *Hedychrum*. They have mid and hind tibial pits, an ecarinate mesopleuron, edentate mandible, large flat pronotum, and an arched medial vein.

A number of Old World species have a tooth or angle below the propodeal angle (Fig. 62e, b). The Afrotropical species are *congoense*, *kilifiense*, *laterale*, and *bidens*, and the Palaearctic ones are *ciliatum* and *karatavicum*.

The Nearctic *dimidiatum* group of Bohart and Kimsey (1982) is characterized by F-I twice as long as broad, and a strongly arched medial vein. This group should probably be merged with the *ardens* group.

*Acrotoma* was erected for Afrotropical species with two submedial teeth or angles on the apex of T-III (Fig. 62k). Three of these, *arnoldi*, *braunsii*, and *dybowskyi*, also have a TFC (Fig. 62b), propodeal angle subtended by a posterior tooth or angle, T-II and -III with strong medial and transverse subapical ridges, F-I less than twice as long as broad, and the tegula and S-II–III green. None of these characteristics are sufficiently unusual to justify the establishment of a separate genus.

The other species placed in *Acrotoma* are *discrepans* and *heymonsi*. They have two obtuse apical teeth on T-III but lack the tergal ridges and TFC of the *dybowskyi* group.

The *flavipes* group of Linsenmaier (1959a) is homologous with the *crassum* group of Bohart and Kimsey (1982), and includes: *auriventris*, *crassum*, *elongatum*, *flavipes*, *incisum*, and *purum*. They have the medial vein strongly arched, T-III rolled under apically and indented apicomediaally, T-II thickened apically, F-I cylindrical and twice as long as broad, or longer, and tegula yellowish.

Two unusual North American species, *cornutum* and *frugale*, have the integument microreticulate between punctures. In addition, F-I is short, the medial vein straight, and both species are less than 3 mm long. They constitute the *frugale* group of Bohart and Kimsey (1982).

Similar to the *frugale* group but lacking microreticulation is the Nearctic *gemmatum* group, which comprises *antennatum*, *argenteum*, *arietinum*, *frontis*, *gemmatum*, *leucostigma*, *milleri*, and *paulum*.

Three Afrotropical species, *capense*, *maculum*, and *rhodesiacum*, the *maculum* group, have unusual facial sculpturing. The face is laterally reticulate-punctate and the scapal basin

is medially coarsely rugose.

Semenov's *Irenula* constitutes the *margaritaceum* group, which includes *chadense* and *margaritaceum*. The most distinctive feature of this group is the unusual coloration. The body is non-metallic red, with an odd overlying silver sheen. Also, Rs is less than half as long as M, the pronotum deeply indented laterally, T-III rolled under laterally and produced apically, and the propodeal angle broadly digitate.

The *monochroum* group of Linsenmaier (1959a) includes part of the species in the *amabile* group of Bohart and Kimsey (1982). In these the brow is large and bulging, scapal basin is very short and cross-ridged with large lateral punctures, flagellum long, slender, and tapering apically, F-I is long, medial vein straight, and T-III somewhat rolled under laterally. Included are: *adventicum*, *atratum*, *breviceps*, *carmelitanum*, *dismorphum*, *fulvago*, *minutissimum*, *monochroum*, *parkanense*, *rasile*, *senegalense*, and *solierellae*.

The Afrotropical *obscuratum* group includes *africanum*, *eardleyi*, *erythema*, and *obscuratum*. They have a broadly triangular propodeal angle, blue tegula and S-II, long clypeus (more than 1.5 MOD), T-III swollen subapically and without rim, F-I short, and malar space at least 0.5 MOD.

Linsenmaier's *roseum* group includes 12 Palearctic species: *chloropygum*, *hofferi*, *bouskai*, *luteum*, *pseudoroseum*, *rhodojanthinum*, *roseum*, *semiluteum*, *subroseum*, *susterae*, and *tsunekii*. In these F-I is about 3 times as long as broad, mesopleuron and fore femur carinate, medial vein strongly arched, and scapal basin coarsely sculptured.

*H. clarum* and *sapphirinum* form a group characterized by the bulging brow, strongly carinate mesopleuron, carinate and angulate fore femur, arched medial vein, F-I twice as long as broad, and T-III subapically thickened.

The Palearctic and Afrotropical *sericifrons* group is one of the most distinctive. Diagnostic features are: brow sharply defined (often with a TFC), scapal basin with tiny punctures and dense silvery setae, fore femur angulate with a lateral and ventral carina and the outer surface between flat (Fig. 62f), T-III with a wide transparent rim, and mesopleuron carinate. The fore femur is uniquely modified in these species. Included are: *bidens*, *facialis*, *flos*, *garianum*, *prunifrons*, *semirufum*, *sericifrons*, *sexdentatum*, *smaragdinum*, *soloriens*, *tyro*, *xanthum*, *zavattari*, *zimmermanni*, and *znoikoi*. This peculiar group also includes species with a multidentate T-III.

Finally, the Afrotropical *sulcatum* group can be immediately identified by the flag-like propodeal angle (Fig. 62g). Instead of being triangular the angle is truncate apically and deeply emarginate or notched posteriorly. Other features include a well developed brow, scapal basin with abruptly fine punctation, T-III thickened and coarsely punctate before rim, S-II and -III green in males, but only S-II in females, and the hind tibia somewhat broadened with a dark convex inner surface. This group includes: *angulatum*, *biquetrum*, *chrysochlorum*, *coloratum*, *gessi*, *namibianum*, *robustum*, *sinuatum*, *ultimum*, *uncinatum*, and *vulgare*.

Unidentified material from arid parts of the Palearctic and Nearctic Regions and southern Africa indicates that a large number of species remain to be described from these areas. *Hedychridium* are not as commonly collected as the other large chrysidine



genera, apparently because most *Hedychridium* are tiny (less than 4 mm long). Also, they tend to stay close to the ground, particularly in the vicinity of small shrubs or other plants that offer food or cover. Even when startled they will often run rather than fly. All of which makes *Hedychridium* a difficult group to collect.

Due to this large diversity there has been relatively little synonymy in *Hedychridium*, except in a few of the commonest European species like *ardens*, *flavipes*, and *roseum*. We have been unable to provide much new synonymy in this genus partly because of the relatively few types that we have seen.

Species distinctions are based on both structural features and coloration. General body colour is used as well as the colour of the wing veins, flagellum, tegula, and tarsomeres. The colour of S-II and -III is particularly important. Facial dimensions, the length to breadth ratios of F-I-II and -V, and the shape of the fore femur, mesopleuron, propodeal angle, and T-III are all valuable diagnostic characteristics.

*Hedychridium* has never been revised on a world basis, only in a series of regional treatments including: Bohart and Kimsey (1978, 1982) for the Americas, Linsenmaier (1951, 1959a, b, 1987) for Europe, and Edney (1940) for southern Africa.

### Checklist of *Hedychridium*

---

*adventicium* Zimmermann. Palaearctic: s Europe.

*adventicium* Zimmermann 1961a:83. Type ?; Austria (VIENNA).

*aegyptiacum* Buysson. Palaearctic: Egypt.

*aegyptiacum* Buysson 1898a:126. (*minutum* var.). Lectotype male (desig. Kimsey 1986c); Egypt: Koubeh near Cairo (PARIS).\*

*aereolum* Buysson. Palaearctic: sw Europe.

*aereolum* Buysson (in André) 1893:198. (*minutum* var.). Syntype male, female; France (PARIS?).

*aeruginosum* (Mocsáry). Palaearctic: ne India.

*aeruginosum* (Mocsáry) 1914:6. (*Holopyga*). Holotype female; India: Sikkim (LONDON).\*

*africanum* Kimsey. Afrotropical: South Africa.

*africanum* Kimsey 1988e:194. Holotype male; South Africa: Natal, Fannies Isl. Camp, St. Lucia (PRETORIA-NIC).\*

*abeneum* (Dahlbom). Palaearctic: s Europe, Libya.

*abeneum* (Dahlbom) 1854:72. (*Hedychrum*). Holotype; 'Russia australi' (BERLIN).

*feritatum* Linsenmaier 1959b:235. (*abeneum* ssp.). Holotype male; 'Palestine' (LUZERN).

*virescens* Buysson 1908a:23. (*abeneum* var.). Syntype male, female; Egypt: Cairo, El Marg (CAIRO ?).

*alfierii* Trautmann. Palaearctic: North Africa.



- alfierii* Trautmann 1926b:90. Syntypes; Algeria, Niger, Egypt (CAIRO ?).  
*rufinistisich* Trautmann 1926b:91. (*alfierii* var.). Type ?; Egypt: Kerdace (CAIRO ?).
- algirum* (Mocsáry). Palaearctic: Algeria.  
*algirum* (Mocsáry) 1889:149. (*Holopyga*). Holotype male; Algeria: Setif (GENEVA).
- alpestre* Semenov. Palaearctic: s USSR.  
*alpestre* Semenov 1954a:100. Lectotype male (desig. Kimsey 1986c); Tadzhik SSR: Kok-ku (leningrad).\*
- amabile* Cockerell. Nearctic: sw USA.  
*amabile* Cockerell 1903:262. Holotype female; USA: New Mexico: Las Cruces, Mesilla Park (WASHINGTON).\*
- azurellum* Bohart 1978:601. Holotype male; USA: California, Inyo Co., Deep Springs (DAVIS).\*
- amatum* Nurse. Palaearctic: nw India.  
*amatum* Nurse 1904:19. Holotype female; India: Deesa (Mus. ?).
- anale* (Dahlbom). Palaearctic: s Europe, North Africa.  
*anale* (Dahlbom) 1854:70. (*Hedychrum*). Holotype female; Portugal: Lusitania (BERLIN).
- andreinii* Buysson. Afrotropical: e Ethiopia.  
*andreinii* Buysson 1904:256. Holotype male; Ethiopia: Eritrea (GENOA).
- angulatum* Edney. Afrotropical: Zimbabwe.  
*angulatum* Edney 1940:71. Syntype male, females; Zimbabwe: Gwanda, Sawmills (CAPE TOWN).\*
- antennatum* Kimsey. Nearctic: sw USA (Nevada, Arizona).  
*antennatum* Kimsey 1978:598. Holotype male; USA: Arizona, Tucson (DAVIS).\*
- ardens* (Coquebert). Palaearctic: Europe, North Africa, Middle East.  
*ardens* (Coquebert) 1801:59. (*Chrysis*). Holotype female; France: Bordeaux ('Burdigalae') (PARIS ?).
- minutum* (Lepeletier) 1806:122. (*Hedychrum*). Lectotype female (desig. Kimsey 1986c); France: Soissons (PARIS).\*
- carinulatum* (Schenck) 1861:178. (*Hedychrum*). Syntypes; Germany: Bomberg (FRANKFURT ?) Nec Spinola 1851.
- homeopathicum* Abeille 1878:3. (*minutum* var.). Lectotype male (desig. Kimsey 1986c); France (PARIS).\*
- viridimarginale* Buysson (In André) 1893:198. (*minutum* var.). Syntype male, female; France, Germany (PARIS).\*
- cinctum* Buysson (in André) 1893:199. (*minutum* var.). Syntype male, female; France (PARIS).\*

- melanogaster* Mercet 1904b:146. (*minutum* var.). Syntype male, female; Spain: Los Molinos, Madrid (MADRID).
- viridis* Trautmann and Trautmann 1919:31. (*ardens* var.). Type ?; Germany: Furth (BERLIN).
- bavaricum* Trautmann and Trautmann 1919:31. Syntypes; Germany: Steinbruchen near Furth (BERLIN).
- aeneum* Trautmann and Trautmann 1919:31. (*bavaricum* var.). Type ?; Germany: Bronnamburg Steinbruch (BERLIN).
- mongolicum* Tsuneki 1947:47. (*ardens* ssp.). Holotype female; Mongolia: Aaka (TSUKUBA).
- argenteum* Kimsey. Nearctic: w USA (California).
- argenteum* Kimsey 1978:599. Holotype male; USA: California, Riverside Co., 18 mi w Blythe (DAVIS).\*
- argentinum* Buysson. Neotropical: Argentina.
- argentinum* Buysson 1909:195. Holotype female; Argentina: Mendoza (PARIS).\*
- arietinum* Bohart. Nearctic: w USA.
- arietinum* Bohart 1978:600. Holotype male; USA: California, Riverside Co., Thousand Palms (DAVIS).\*
- arnoldi* (Edney). Afrotropical: Namibia.
- arnoldi* (Edney) 1940:51. (*Acrotoma*). Lectotype male (desig. Kimsey 1986c); Namibia: Okahandya (LONDON).\*
- atratum* Linsenmaier. Palaearctic: Turkey.
- atratum* Linsenmaier 1968:129. Holotype female; Turkey: Mut (LUZERN).
- attenuatum* (Mocsáry). Oriental: Sri Lanka.
- attenuatum* (Mocsáry) 1914:5. (*Holopyga*). Holotype female; Sri Lanka: Madulsima (LONDON).\*
- auriventris* Mercet. Palaearctic: Spain.
- auriventris* Mercet 1904a:85. Holotype female; Spain: Los Molinos (MADRID).
- aurora* Trautmann. Palaearctic: Germany.
- aurora* Trautmann and Trautmann 1919:32. (*integrum* var.). Syntype females; Germany: Nurnburg (BERLIN).
- benoiti* Zimmermann. Afrotropical: Madagascar.
- benoiti* Zimmermann 1956:143. Holotype female; Madagascar: Bekily (PARIS).\*
- bergi* Semenov. Palaearctic: s USSR.
- bergi* Semenov 1954a:98. Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Peter the Great Range (LENINGRAD).\*
- bicolor* Kimsey. Afrotropical: South Africa.
- bicolor* Kimsey 1988e:194. Holotype male; South Africa: Van Rhynsdorp (PRETORIA-TM).\*

*bidens* Kimsey. Afrotropical: Senegal.

*bidens* Kimsey 1988e:195. Holotype male; Senegal: 3 km n Tanaff (LUND).\*

*bilobatum* Bohart. Nearctic: w USA.

*bilobatum* Bohart 1978:602. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS).\*

*biquetrum* Kimsey. Afrotropical: South Africa.

*biquetrum* Kimsey 1988e:196. Holotype female; South Africa: Transvaal, Ellisras (PRETORIA-NIC).\*

*braunsii* (Mocsáry). Afrotropical: South Africa.

*braunsii* (Mocsáry) 1902b:538. (*Acrotoma*). Holotype male; South Africa: Cape Prov., Wil-  
lowmore (PRETORIA-TM).\*

*breviceps* (Semenov). Palaearctic: s and sw USSR.

*breviceps* (Semenov) 1954a:101. (*Cyrteuchridium*). Lectotype female (desig. Kimsey 1986c);  
Armenian SSR: Darachichag (LENINGRAD).\*

*cyanellum* (Semenov and Nikol'skaya) 1954:101. (*Cyrteuchridium*). Lectotype female (desig.  
Kimsey 1986c); Tadzhik SSR: Shuroabad (LENINGRAD) N. synonymy.\*

*pusio* (Semenov) 1954a:100. (*Cyrteuchridium*). Holotype female; Tadzhik SSR: Termez  
(LENINGRAD). N. synonymy.\*

*brevifronte* Linsenmaier. Palaearctic: Israel.

*brevifronte* Linsenmaier 1968:30. Holotype male; Israel: Jerusalem (LUZERN).

*bulawayoense* Edney. Afrotropical: Zimbabwe.

*bulawayoense* Edney 1940:60. Lectotype male (desig. Kimsey herein); Zimbabwe: Bulawayo  
(CAPE TOWN).\*

*buyssoni* Abeille. Palaearctic: s France, Spain, North Africa, Cyprus.

*buyssoni* Abeille (in Buysson) 1887b:173. Holotype female; France: Marseille (PARIS).\*

*sparsapunctulatum* Linsenmaier 1959a:50. (*buyssoni* ssp.). Holotype female; Algeria: El  
Kantara (LUZERN).

*bytinskii* Linsenmaier. Palaearctic: Middle East, Turkey, Greece, North Africa.

*bytinskii* Linsenmaier 1959a:53. Holotype female; Israel: Bet Lid (LUZERN).

*projucundum* Linsenmaier 1959a:49. Holotype male; Morocco: Mehinda (LUZERN).

*caeruleum* (Norton). Nearctic: central USA.

*caeruleum* (Norton) 1879:239. (*Hedychrum*). Holotype female; USA: 'Dacota' (PHILADEL-  
PHIA).\*

*caireanum* Linsenmaier. Palaearctic: Egypt.

*caireanum* Linsenmaier 1968:33. Holotype male; Egypt: Cairo (LUZERN).

*canarianum* Linsenmaier. Palaearctic: Canary Isls.

- canariense* Linsenmaier 1968:28. Holotype female; Spain: Canary Isls., Tenerife, Los Christianos (LONDON). Nec Mercet 1915.
- canarianum* Linsenmaier 1987:140. N. repl. name for *canariense* Linsenmaier 1968.
- canariense* Mercet. Palaearctic: Canary Isls.
- canariense* Mercet 1915:160. Holotype; Spain: Canary Isl., Bajamar, Tenerife (MADRID).
- capensis* Mocsáry. Afrotropical: South Africa.
- capensis* Mocsáry 1889:136. Lectotype female (desig. Kimsey 1986c); South Africa: Cape Prov., 'Le Cap' (PARIS).\*
- viridis* Edney 1940:60. (*capensis* var.). Holotype female; South Africa: Transvaal, Lichtenburg (PRETORIA-TM). Nec Trautmann and Trautmann 1919.
- carmelitanum* Mercet. Palaearctic: Spain.
- carmelitanum* Mercet 1915:157. Holotype female; Spain: Madrid (MADRID).
- caspicum* (Mocsáry). Palaearctic: sw USSR.
- caspicum* (Mocsáry) 1890:53. (*Holopyga*). Holotype female; USSR: Caspian Sea (KRAKOW?).
- centralasiaticum* Trautmann. Palaearctic: s USSR.
- centralasiaticum* Trautmann 1920:150. Syntype females; Uzbek SSR: Fergana (BERLIN).
- centrale* Bohart. Neotropical: El Salvador.
- centrale* Bohart 1978:604. Holotype female; El Salvador: Quezaltepeque (DAVIS).\*
- chadense* Kimsey. Palaearctic: Chad.
- chadense* Kimsey 1988e:196. Holotype female; Chad: N'Gouri, Kanem Dist. (TERVUREN).\*
- chakouri* Buysson. Palaearctic: Egypt.
- chakouri* Buysson 1907:138. Holotype; Egypt (Mus. ?).
- chlorophyllum* Trautmann. Palaearctic: Egypt, Middle East.
- chlorophyllum* Trautmann 1926a:5. (*elegantulum* var.). Type ?; 'Palestine' (BERLIN).
- chloropygum* Buysson. Palaearctic: Europe, North Africa, Turkey.
- chloropygum* Buysson 1888:13. (*roseum* var.). Syntype females; France (PARIS ?).
- berberiacum* Linsenmaier 1959a:59. (*chloropygum* ssp.) Holotype male; Algeria (LUZERN).
- densum* Linsenmaier 1959a:59. (*chloropygum* ssp.). Holotype male; France: Seine-Marne (LUZERN).
- spatium* Linsenmaier 1959a:59. (*chloropygum* ssp.). Holotype male; Hungary: Simontornya (LUZERN).
- chrysochlorum* (Mocsáry). Afrotropical: South Africa.
- chrysochlorum* (Mocsáry) 1908b:505. (*Holopyga*). Holotype male; South Africa: Transvaal, Johannesburg (PRETORIA-TM).\*



*ciliatum* Semenov. Palaearctic: s USSR.

*ciliatum* Semenov 1967:130. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*clarum* (Semenov). Palaearctic: sw USSR, Middle East.

*clarum* (Semenov) 1967:133. (*Zarudnidium*). Holotype male; Russian SFSR: Kirovavad, Yelisavetpol (LENINGRAD).\*

*davydovi* (Semenov) 1967:133. (*Zarudnidium*). Holotype male; Israel: Wadi-Kumera (LENINGRAD) N. synonymy.\*

*cockerelli* Buysson. Nearctic: w USA (Colorado).

*cockerelli* Buysson 1906b:111. Holotype male (not female); USA: Colorado, South Boulder Canyon (PARIS).\*

*colonialis* Mocsáry. Palaearctic: Ethiopia.

*colonialis* Mocsáry 1911b:449. (*Holopyga*). Holotype male; Ethiopia: Eritrea, Keren (BUDAPEST).\*

*coloratum* Edney. Afrotropical: South Africa.

*coloratum* Edney 1940:74. Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov., Matjesfontein (LONDON).\*

*impressum* Edney 1940:76. (*coloratum* var.). Holotype male; South Africa: Cape Prov., Ceres (LONDON).\*

*congoense* Kimsey. Afrotropical: Zaire.

*congoense* Kimsey 1988e:198. Holotype female; Zaire: Katanga, Kasompi, Jadotville Terr. (TERVUREN).\*

*coriaceum* (Dahlbom). Palaearctic: Europe.

*coriaceum* (Dahlbom) 1854:88. (*Hedychrum*). Lectotype female (desig. Morgan 1984); Finland: Helsingfors (LUND).

*jendoubense* Linsenmaier 1987:140. (*coriaceum* ssp.). Holotype female; Tunisia: Jendouba (LUZERN).

*cornutum* Bohart. Nearctic: w USA (California, Arizona), Mexico (Baja California).

*cornutum* Bohart 1978:606. Holotype male; USA: California, San Luis Obispo Co., Dune Lakes (SAN FRANCISCO).\*

*coruscum* Bohart. Nearctic: w USA (California).

*coruscum* Bohart 1978:607. Holotype male; USA: California, Santa Barbara Co., Goleta (DAVIS).\*

*crassum* Bohart. Nearctic: w USA.

*crassum* Bohart 1978:608. Holotype male; USA: California, Lassen Co., Hallelujah Junction (DAVIS).\*

*crebrum* Kimsey. Nearctic: w USA.

*crebrum* Kimsey 1978:609. Holotype male; USA: California, Mariposa Co., Mariposa Canyon (DAVIS).\*

*cupratum* (Dahlbom). Palaearctic: Italy, Switzerland.

*cupratum* (Dahlbom) 1854:84. (*Hedychrum*). Syntype females; Italy and Switzerland (BERLIN).\*

*cupreidorsum* Kimsey. Afrotropical: South Africa.

*cupreidorsum* Kimsey 1988e:198. Holotype female; South Africa: Cape Prov., Pakhuis Pass (DAVIS).\*

*cupreum* (Dahlbom). Palaearctic: Europe.

*cupreum* (Dahlbom) 1845:3. (*Hedychrum*). Holotype female; Switzerland (Mus. ?).

*cupritibiale* Linsenmaier. Palaearctic: Spain.

*cupritibiale* Linsenmaier 1987:139. Holotype female; Spain: Granada, Sierra Chaparall (LUZERN).

*desertorum* Kimsey. Afrotropical: Namibia.

*desertorum* Kimsey 1988e:199. Holotype male; Namibia: Namib/Naukluft Park, Kuiseb River near Gobakeb (PRETORIA-NIC).\*

*dimidiatum* (Say). Nearctic: widespread.

*dimidiatum* (Say) 1824:330. (*Hedychrum*). Holotype female; USA: Pennsylvania (destroyed).

*mexicanum* (Cameron) 1888:460. (*Chrysis*). Holotype female; Mexico: Zacatecas City (LONDON).\*

*mexicanum* (Mocsáry) 1911b:448. (*Holopyga*). Holotype male; Mexico (BUDAPEST). Nec Cameron 1888.\*

*discordum* Linsenmaier. Palaearctic: Morocco.

*discordum* Linsenmaier 1959a:50. Holotype female; Morocco: Plateau de Oukaimeden (LUZERN).

*discrepans* (Edney). Afrotropical: South Africa.

*discrepans* (Edney) 1940:54. (*Acrotoma*). Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov., Matjesfontein (LONDON).\*

*candida* (Edney) 1940:56. (*Acrotoma discrepans* var.). Lectotype male (desig. Kimsey 1986c); Namibia: Aus (LONDON).\*

*disiunctum* Linsenmaier. Palaearctic: Morocco.

*disiunctum* Linsenmaier 1959a:51. Holotype female; Morocco: Tinerhir (LAUSANNE).

*dismorphum* Linsenmaier. Palaearctic: Algeria.

*dismorphum* Linsenmaier 1959a:52. Holotype female; Algeria: Biskra (LUZERN).

*dubium* Mercet. Palaearctic: Spain.

*dubium* Mercet 1904b:147. Holotype male; Spain: Segovia Prov., El Espinar (MADRID).

*dybowskyi* Buysson. Afrotropical: Zaire.

*dybowskyi* Buysson 1898b:520. Holotype male; Congo (PARIS).\*

*dzhanelidzei* Semenov. Palaearctic: sw USSR (Georgia).

*dzhanelidzei* Semenov 1967:128. Holotype female; Georgian SSR: Tbilisi (LENINGRAD).\*

*eardeleyi* Kimsey. Afrotropical: South Africa.

*eardeleyi* Kimsey 1988e:199. Holotype female; South Africa: Orange Free State, Harrismith (PRETORIA-TM).\*

*elegantulum* Buysson. Palaearctic: s Europe, Middle East.

*elegantulum* Buysson 1887b:173. Lectotype female (desig. Kimsey 1986c); France: Montpellier (PARIS).\*

*peloponnense* Linsenmaier 1968:31. (*elegantulum* ssp.). Holotype female; Greece: Olympia (LUZERN).

*elongatum* Linsenmaier. Palaearctic: Morocco.

*elongatum* Linsenmaier 1959a:57. Holotype female; Morocco: Trafraout (LAUSANNE).

*erythema* Kimsey. Afrotropical: South Africa. South Africa.

*erythema* Kimsey 1988e:200. Holotype female; South Africa: Cape Prov., 7 mi ne Garies (DAVIS).\* ^

*etnaense* Linsenmaier. Palaearctic: Italy (Sicily).

*etnaense* Linsenmaier 1968:26. Holotype male; Italy: Sicily, Etna (LUZERN).

*eupraxiae* Semenov. Palaearctic: s USSR.

*eupraxiae* Semenov 1954a:99. Holotype female; Tadzhik SSR: Mikoyanabad (LENINGRAD).\*

*facialis* (Mocsáry). Afrotropical: Ethiopia.

*facialis* (Mocsáry) 1889:449. (*Holopyga*). Holotype male; Ethiopia: Eritrea, Ghinda (BUDAPEST).\*

*femoratum* (Dahlbom). Palaearctic: s Europe, Turkey, North Africa.

*femoratum* (Dahlbom) 1854:90. (*Hedychrum*). Holotype; Austria (VIENNA ?).

*gratiosum* Abeille 1878:3. Type ?; France (PARIS).\*

*miricolor* Morice 1909:466 (*femoratum* var.). Holotype female; Jordan: Jericho (OXFORD).\*

*elegans* (Mocsáry) 1911b:450. (*Holopyga*). Lectotype female (desig. French 1986); Turkey: Izmir (BUDAPEST).\*

*uniformis* Linsenmaier 1959a:54. (*elegans* ssp.). Holotype female; Morocco: Marrakech (Naef Coll.).

*flavipes* (Eversmann). Palaearctic: s Europe, w USSR, Middle East, North Africa.

*flavipes* (Eversmann) 1857:552. (*Hedychrum*). Type ?; Russian SFSR: 'Orientalibus et Uralensibus' (KRAKOW ?) (*flavipes* group)

*solandii* (Courtiller) 1859:65. (*Hedychrum*). Holotype female; France: Saumur (Mus. ?).

- bellipes* (Mocsáry) 1879a:121. (*Hedychrum*). Holotype female; Hungary (BUDAPEST).
- pallipes* (Tournier) 1879:99. (*Spintharis*). Syntype male, female; Russian SFSR: Sarepta (Lost?).
- cyanomaculatum* Trautmann 1927:63. (*flavipes* var.). Syntype males; Tunisia: Kairouam (BERLIN).
- rugulosum* Linsenmaier 1959a:57. (*flavipes* ssp.). Holotype female; Cyprus: Limassol (LUZERN).
- temperatum* Linsenmaier 1959a:57. (*flavipes* ssp.). Holotype male; Morocco (LAUSANNE).
- fletcheri* Bodenstein. Nearctic: Canada, USA, nw Mexico, widespread.
- viride* (Cresson) 1865b:306. (*Hedychrum*). Lectotype female (desig. Cresson 1916); USA: 'Colorado Territory' (PHILADELPHIA). Nec Guérin 1842.\*
- fletcheri* Bodenstein 1951:720. Repl. name for *viride* Cresson 1865b.
- flos* Semenov. Palaearctic: s USSR, Iran.
- flos* Semenov 1954a:105. (*Cyrteuchrum*). Holotype female; Kazakh SSR: Imam-Baba (LENINGRAD).\*
- nivifrons* (Semenov) 1967:134. (*Cyrteuchrum*). Holotype male; China: 'Bugas at Khami' (LENINGRAD) N. synonymy.\*
- redikortzevi* (Semenov) 1967:135. (*Cyrteuchrum*). Holotype female; Iran: Astrabad (LENINGRAD) N. synonymy.\*
- lindholmi* (Semenov) 1967:136. (*Cyrteuchrum*). Holotype male; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD) N. synonymy.\*
- franciscanum* Linsenmaier. Palaearctic: Spain.
- franciscanum* Linsenmaier 1987:140. Holotype female; Spain: Madri (LUZERN).
- frontis* Kimsey. Nearctic: w USA (California, Arizona), nw Mexico.
- frontis* Kimsey 1978:612. Holotype male; USA: California, Riverside Co., 18 mi w Blythe (DAVIS).\*
- frugale* Bohart. Nearctic: w USA (California, Arizona).
- frugale* Bohart 1978:613. Holotype male; USA: California, Imperial Co., Glamis (DAVIS).\*
- fulgidum* Kimsey. Afrotropical: Namibia.
- fulgidum* Kimsey 1988e:200. Holotype female; Namibia: Namib/Naukluft Park, Kuiseb River near Gobabeb (PRETORIA-TM).\*
- fulvago* (Semenov and Nikol'skaya). Palaearctic: s USSR.
- fulvago* (Semenov and Nikol'skaya) 1954:120. (*Cyrteuchridium*). Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Stalinabad (LENINGRAD).\*
- obscuratum* (Semenov and Nikol'skaya) 1954:120. (*Cyrteuchridium*). Holotype female; Uzbek SSR: Hissar (LENINGRAD) Nec Mocsáry 1902a. N. synonymy.\*
- garianum* Linsenmaier. Palaearctic: Libya.
- garianum* Linsenmaier 1968:24. Holotype male; Libya: Tripolitania near Gharyan



(LONDON).\*

*gemma* (Semenov). Palaearctic: sw USSR (Georgia).

*gemma* (Semenov) 1967:132. (*Euchrum*). Holotype male; Georgian SSR: Lagodechi (LENINGRAD).\*

*gemmatum* Kimsey. Nearctic: sw USA.

*gemmatum* Kimsey 1978:614. Holotype male; USA: California, Riverside Co., 18 mi w Blythe (DAVIS).\*

*georgii* Semenov. Palaearctic: s USSR.

*georgii* Semenov 1967:129. Holotype male; Kazakh SSR: Golodnaya Step (LENINGRAD).\*

*gessi* Kimsey. Afrotropical: South Africa.

*gessi* Kimsey 1988e:201. Holotype female; South Africa: Cape Prov., Grahamstown, Hilton (CAPE TOWN).\*

*gussakovskii* Semenov and Nikol'skaya. Palaearctic: s USSR.

*gussakovskii* Semenov and Nikol'skaya 1954:98. Holotype female; Tadzhik SSR: Mikoyanabad (LENINGRAD).\*

*heliophilum* Abeille. Palaearctic: North Africa, s Spain.

*heliophilum* Abeille (In Buysson) 1887b:172. Holotype female; Algeria (PARIS).\*

*heymonsi* (Bischoff). Afrotropical: Tanzania.

*heymonsi* (Bischoff) 1910:445. (*Acrotoma*). Holotype male; Tanzania: Nyassa-See, Langenburg (BERLIN).\*

*hilare* Morice. Palaearctic: Iraq.

*hilare* Morice 1921:201. Holotype male; Iraq: 'Amaria' (OXFORD).\*

*hirtum* (Semenov). Palaearctic: s USSR.

*hirtum* (Semenov) 1967:137. (*Cryteuchrum*). Holotype male; Kazakh SSR: Balamurum, Karatau foothills (LENINGRAD).\*

*hofferi* Balthasar. Palaearctic: Jordan.

*hofferi* Balthasar 1953:139. Holotype female; Jordan: Wadi el Kelt (PRAGUE).

*houskai* Balthasar. Palaearctic: Middle East Jordan, Israel.

*houskai* Balthasar 1953:140. Holotype female; Israel: Jerusalem (PRAGUE).

*hungaricum* Móczár. Palaearctic: se Europe.

*hungaricum* Móczár 1964a:442. Holotype male; Hungary: Ocsa- Nagyerdo (BUDAPEST).\*

*hyalinatum* (Mocsáry). Afrotropical: e Ethiopia.

*hyalinatum* (Mocsáry) 1911b:448. (*Holopyga*). Holotype female; Ethiopia: Eritrea, Ghinda (BUDAPEST).\*

*hybridum* Linsenmaier. Palaearctic: s Europe.

*hybridum* Linsenmaier 1959a:53. Holotype female; France: Frejus (LUZERN).

*creteense* Linsenmaier 1959b:234. (*hybridum* ssp.). Holotype female; Greece: Crete (LUZERN).

*ibericum* Linsenmaier. Palaearctic: Portugal, Spain.

*ibericum* Linsenmaier 1959a:52. Holotype male; Spain: Ronda (LUZERN).

*incensa* (Mocsáry). Palaearctic: s USSR.

*incensa* (Mocsáry) 1914:7. (*Holopyga*). Lectotype female (desig. French 1986); USSR: 'Turkestan' (BUDAPEST).\*

*incisum* Bohart. Nearctic: w USA (California).

*incisum* Bohart 1978:615. Holotype male; USA: California, Sierra Co., Sierra Valley (DAVIS).\*

*incrassatum* (Dahlbom). Palaearctic: sw Europe, North Africa.

*incrassatum* (Dahlbom) 1854:73. (*Hedychrum*). Holotype; Italy: Sicily (TURIN).

*callosum* Radoszkowski 1876a:108. Holotype; 'Russia' (KRAKOW ?).

*mauroumoustakisi* Enslin 1950:659. (*incrassatum* var.). Holotype; Cyprus: Kato Platres (LUZERN).

*subabeneum* Linsenmaier 1959a:55. (*incrassatum* ssp.). Holotype female; Morocco: Trafraout (LAUSANNE).

*infans* Abeille. Palaearctic: s Europe, North Africa.

*infans* Abeille 1879:3. (*minutum* var.). Lectotype male (desig. Kimsey herein); France (PARIS).\*

*santschii* Trautmann 1927:70. (*ardens* var.). Syntypes; Tunisia: Kairouan (BERLIN, ZURICH).

*insequosum* Linsenmaier. Palaearctic: Jordan, Cyprus.

*insequosum* Linsenmaier 1959a:56. Holotype female; Jordan: Jericho (LUZERN).

*integrum* (Dahlbom). Palaearctic: Europe.

*integrum* (Dahlbom) 1854:86. (*Hedychrum*). Syntype male, female; 'Scandinavia' (LUND).

*interrogatum* Linsenmaier. Palaearctic: s Europe.

*interrogatum* Linsenmaier 1959a:50. (*buyssoni* ssp.). Holotype female; Cyprus (LUZERN).

*inusitatum* Linsenmaier. Palaearctic: Morocco.

*inusitatum* Linsenmaier 1959a:56. Holotype male; Morocco: Ksar es Souk (LUZERN).

*iocosum* Linsenmaier. Palaearctic: Morocco.

*iocosum* Linsenmaier 1959a:47. Holotype female; Morocco: Goulimine (LAUSANNE).

*irregulare* Linsenmaier. Palaearctic: se Europe, Turkey, Middle East.

*irregulare* Linsenmaier 1959a:62. Holotype male; Greece: Athens (LUZERN).

*insulare* Linsenmaier 1959a:62. (*irregulare* ssp.). Holotype male; Cyprus: Limassol (LUZERN).  
Nec Balthasar 1954a.

*israelicum* Linsenmaier. Palaearctic: Israel.

*israelicum* Linsenmaier 1968:27. Holotype female; Israel: Khan Chadrur (LUZERN).

*jakolewi* Semenov. Palaearctic: sw USSR (Georgia).

*jakolewi* Semenov 1892c:72. Holotype female; Georgian SSR: Kopet dagh Mnts, Tschuli (LENINGRAD).\*

*jazygicum* Móczár. Palaearctic: se Europe.

*jazygicum* Móczár 1964a:444. Holotype female; Hungary: Jaszbereny (BUDAPEST).\*

*jebbanum* Kimsey. Afrotropical: Nigeria.

*jebbanum* Kimsey 1988e:201. Holotype female; Nigeria: Jebba (LEIDEN).\*

*jordanense* Linsenmaier. Palaearctic: Jordan.

*jordanense* Linsenmaier 1968:27. Holotype female; Jordan: Jericho (LUZERN).

*jucundum* Moczáry. Palaearctic: s Europe, sw USSR.

*jucundum* Moczáry 1889:150. Lectotype female (desig. Móczár 1964b); France (BUDAPEST).\*

*karatavicum* Semenov. Palaearctic: s USSR.

*karatavicum* Semenov 1967:128. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*kilifiense* Kimsey. Afrotropical: Kenya.

*kilifiense* Kimsey 1988e:202. Holotype female; Kenya: Kilifi Dist., Sokoke Forest (LOS ANGELES).\*

*krajniki* Balthasar. Palaearctic: se Europe, Turkey.

*krajniki* Balthasar 1946:237. Syntypes; Czechoslovakia: Slovakia, Parkan (PRAGUE).

*turceyense* Linsenmaier 1968:30. (*krajniki* ssp.). Holotype female, Turkey: Ulu Dag (LUZERN).

*laetificum* Linsenmaier. Palaearctic: Morocco.

*laetificum* Linsenmaier 1959a:51. Holotype female; Morocco: Marrakech (LAUSANNE).

*laetum* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*laetum* (Semenov and Nikol'skaya) 1954:105. (*Zarudnidium*). Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Kondara (LENINGRAD).\*

*laterale* Edney. Afrotropical: Zimbabwe.

*laterale* Edney 1940:67. Holotype female; Zimbabwe: Sawmills (CAPE TOWN).\*

*diversum* Edney 1940:68. Lectotype male (desig. Kimsey herein); Zimbabwe: Bulawayo (CAPE TOWN). N. synonymy.\*

*latifrons* Edney. Afrotropical: South Africa.

*latifrons* Edney 1940:72. Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov., Somerset East (LONDON).\*

*lemoulti* Buysson. Afrotropical: Madagascar.

*lemoulti* Buysson 1910a:124. Holotype female; Madagascar (PARIS).\*

*leucostigma* Bohart. Nearctic: w USA (California, Arizona), Mexico (Baja California).

*leucostigma* Bohart 1978:616. Holotype male; USA: California, San Diego Co., Borrego Valley (DAVIS).\*

*lividum* Bohart. Nearctic: w USA (California).

*lividum* Bohart 1978:617. Holotype male; USA: California: Riverside Co., Thousand Palms (DAVIS).\*

*lomboldti* Kimsey. Afrotropical: Namibia.

*lomboldti* Kimsey 1988e:202. Holotype male; Namibia: Rooibank, Kuisel River (COPENHAGEN).\*

*lucidiventre* Semenov. Palaearctic: s USSR.

*lucidiventre* Semenov 1967:127. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*luteipenne* Linsenmaier. Palaearctic: Egypt.

*luteipenne* Linsenmaier 1968:22. Holotype male; Egypt: Cairo (LUZERN).

*luteum* Zimmermann. Palaearctic: Egypt.

*luteum* Zimmermann 1940:32. Syntype male, females; Egypt: Cairo, Wadi Hof, Ezbet-el-Nachl, Sakkara (CAIRO, VIENNA).

*maculum* Kimsey. Afrotropical: Zimbabwe.

*maculatum* Edney 1940:58. Lectotype male (desig. Kimsey herein); Zimbabwe: Reabauk (CAPE TOWN).\*Nec Trautman 1927.

*maculum* Kimsey. N. repl. name for *maculatum* Edney 1940.

*malagassum* Buysson. Afrotropical: Madagascar.

*malagassum* Buysson 1910a:124. Lectotype male (desig. Kimsey 1986c); Madagascar (PARIS).\*

*margaritaceum* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*margaritaceum* (Semenov and Nikol'skaya) 1954:102. (*Irenula*). Lectotype female (desig. Kimsey 1986c); USSR: 'Tartugai' (LENINGRAD).\*

*maricopae* Bohart. Nearctic: w USA.

*maricopae* Bohart 1978:618. Holotype male; USA: Arizona, Maricopa Co., Wickenburg (DAVIS).\*



*maroccense* Linsenmaier. Palaearctic: Morocco, Israel.

*maroccense* Linsenmaier 1959a:64. Holotype male; Morocco: Agadir (LUZERN).

*marteni* Linsenmaier. Palaearctic: Spain, Morocco.

*marteni* Linsenmaier 1951:24. (*reticulatum* var.). Holotype female; Spain: Soria (LUZERN).

*ruborum* Linsenmaier 1959a:50. (*marteni* ssp.). Holotype female; Morocco: Plateau de Oukaimeden (LUZERN).

*masadunense* Lefebvre. Palaearctic: Netherlands.

*masadunense* Lefebvre 1986:95. Holotype male; Netherlands: Noord- Brabant Prov., Drunen (LEIDEN).

*meda* (Semenov). Palaearctic: Iran.

*meda* (Semenov) 1954b:145. (*Psacas*). Holotype male; Iran: Luristan, Ahwan (LENINGRAD).\*

*mediocrate* Kimsey. Palaearctic: Switzerland.

*mediocrum* Linsenmaier 1987:142. Holotype male; Switzerland: Wallis (LUZERN). Nec

*mediocre* Linsenmaier 1959a.

*mediocrate* Kimsey. N. repl. name for *mediocre* Linsenmaier 1987.

*medvedevi* Semenov. Palaearctic: s USSR.

*medvedevi* Semenov 1967:131. Holotype male; Turkmen SSR: Bakharden (LENINGRAD ?).

*menkei* Bohart. Nearctic: w USA, s Canada.

*menkei* Bohart 1978:619. Holotype male; USA: California, Tuolumne Co., Leland Meadow (DAVIS).\*

*milleri* Kimsey. Nearctic: w USA (California).

*milleri* Kimsey 1978:620. Holotype male; USA: California, Lake Co., Borax Lake (DAVIS).\*

*minutissimum* Mercet. Palaearctic: Spain.

*minutissimum* Mercet 1915:55. Holotype sex undeterminable; Spain: Madrid, El Escorial (MADRID).

*mirabile* Kimsey. Nearctic: w USA, sw Canada, Mexico.

*mirabile* Kimsey 1978:620. Holotype male; USA: California, Yolo Co., Rumsey (DAVIS).\*

*miramae* Semenov. Palaearctic: Iran.

*miramae* Semenov 1967:128. Holotype female; Iran: Nerduali, Meshkhed (LENINGRAD).\*

*modestum* Buysson. Palaearctic: Egypt.

*modestum* Buysson 1900:129. Lectotype male (desig. Kimsey herein); Egypt: Elephantine (PARIS).\*

*monochroum* Buysson. Palaearctic: widespread.

*monochroum* Buysson 1888:3. Holotype female; France: Marseille (PARIS).\*

*lampunense* Tsuneki 1961:370. (*monochroum* ssp.). Holotype female; Thailand: Lampun (TSUKUBA).

*moricei* Buysson. Palaearctic: s Europe, Turkey, Iran, Middle East.

*moricei* Buysson 1904:256. Holotype male; Greece: Zakynthos ('Zante') (OXFORD).\*

*chrysurum* Linsenmaier 1969:373. (*moricei* ssp.). Holotype male; Jordan: Jericho (LUZERN).

*mysticum* Semenov. Palaearctic: Iran.

*mysticum* Semenov 1912:177. Holotype male; Iran: Bampur (LENINGRAD ?).

*nevadae* Kimsey. Nearctic: w USA.

*nevadae* Kimsey 1978:621. Holotype male; USA: California, Inyo Co., Lone Pine (DAVIS).\*

*namibianum* Kimsey. Afrotropical: Namibia.

*namibianum* Kimsey 1988e:203. Holotype male; Namibia: Namib/Naukluft Park, Kuiseb River near Gobabeb (PRETORIA- NIC).\*

*obscuratum* (Mocsáry). Afrotropical: South Africa.

*obscuratum* (Mocsáry) 1902b:536. (*Holopyga*). Lectotype female (desig. French 1986); South Africa: Algoa Bay (BUDAPEST).\*

*olene* Kimsey. Nearctic: w USA.

*olene* Kimsey 1978:622. Holotype male; USA: California, Nevada Co., Boca (DAVIS).\*

*oshanini* Semenov. Palaearctic: s USSR.

*oshanini* Semenov 1954a:98. Holotype female; Tadzhik SSR: Peter the Great Range (LENINGRAD).\*

*palestinense* Balthasar. Palaearctic: Middle East, Cyprus.

*palestinense* Balthasar 1953:145. (*sculpturatum* var.). Syntype male, female; Israel: Jerusalem (PRAGUE).

*maculiventre* Linsenmaier 1959a:63. Unnec. repl. name for *palestinense* Balthasar 1953.

*sculpturatissimum* Linsenmaier 1959a:63. (*maculiventre* ssp.). Holotype female; Cyprus: Zakaki (LUZERN).

*parkanense* Balthasar. Palaearctic: e Europe.

*parkanense* Balthasar 1946:238. Holotype; Czechoslovakia: Parkan (PRAGUE).

*paulum* Bohart. Nearctic: w USA.

*paulum* Bohart 1978:623. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS).\*

*parvulum* Edney. Afrotropical: Zimbabwe.

*parvulum* Edney 1940:62. Lectotype male (desig. Kimsey herein); Zimbabwe: Bulawayo (CAPE TOWN).\*

*perpunctatum* Balthasar. Palaearctic: Jordan.

*perpunctatum* Balthasar 1953:143. Holotype female; Jordan: Wadi el Kelt (PRAGUE).

*perraudini* Linsenmaier. Palaearctic: France.

- perraudini* Linsenmaier 1968:126. Holotype female; France: Corsica, Ft. Ospedale (LUZERN).
- perscitum* Linsenmaier. Palaearctic: Cyprus, Greece.
- perscitum* Linsenmaier 1959a:52. Holotype female; Cyprus (LUZERN).
- perversum* Nurse. Palaearctic: India.
- perversum* Nurse 1902:306. Lectotype male (desig. Kimsey herein); India: Peshin (LONDON).\*
- piliiferum* Semenov. Palaearctic: s USSR.
- piliiferum* Semenov 1967:131. Holotype female; Turkmen SSR: Serakhs (LENINGRAD).\*
- piligastre* Linsenmaier. Palaearctic: Israel.
- piligastre* Linsenmaier 1969:373. Holotype male; Israel: Tiberias (LUZERN).
- placare* Linsenmaier. Palaearctic: Cyprus.
- placare* Linsenmaier 1968:37. Holotype male; Cyprus: Yermasoyia River (LUZERN).
- plagiatum* (Mocsáry). Palaearctic: s Europe, Turkey.
- plagiatum* (Mocsáry) 1883:14. (*Hedychrum*). Holotype male; Turkey: 'Brussam' (BUDAPEST).\*
- andalusicum* Trautmann 1920:150. (*plagiatum* var.). Holotype female; Spain: Andalusia (BERLIN).
- planatum* Bischoff. Palaearctic: Tunisia.
- planatum* Bischoff 1910:439. Syntype male, female; Tunisia: Zaghuan (BERLIN).
- auratum* Bischoff 1910:439. (*planatum* var.). Type ?; Tunisia: Zaghuan (BERLIN).
- planifrons* Buysson. Palaearctic: North Africa, Middle East.
- planifrons* Buysson 1900:129. Lectotype male (desig. Kimsey 1986c); Egypt: Heloun (PARIS).\*
- politum* Bohart. Nearctic: w USA.
- politum* Bohart 1978:624. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS).\*
- postthoracicum* Linsenmaier. Palaearctic: Morocco.
- postthoracicum* Linsenmaier 1959a:51. Holotype female; Morocco: Marakech (LAUSANNE).
- pruinifrons* (Semenov). Palaearctic: s USSR.
- pruinifrons* (Semenov) 1967:136. (*Cyrteuchrum*). Holotype female; Uzbek SSR: Margelan (LENINGRAD).\*
- pruinsum* Semenov. Palaearctic: s USSR.
- pruinsum* Semenov 1967:131. Holotype female; Kazakh SSR: Baigakum (LENINGRAD).\*

*pseudoincrassatum* Linsenmaier. Palaearctic: Israel.

*pseudoincrassatum* Linsenmaier 1968:34. Holotype female; Israel: Bar Yam (LUZERN).

*pseudoroeseum* Linsenmaier. Palaearctic: Cyprus.

*pseudoroeseum* Linsenmaier 1959a:60. Holotype female; Cyprus: Limassol (LUZERN).

*pulchellum* (Mocsáry). Palaearctic: sw USSR (Georgia).

*pulchellum* (Mocsáry) 1893:214. (*Holopyga*). Holotype female; Georgian SSR: Caucasus, Araxes (VIENNA).

*purpurascens* (Dahlbom). Palaearctic: central Europe.

*purpurascens* (Dahlbom) 1854:85. (*Hedychrum*). Holotype; Poland: Silesia (LUND).

*meyeri* Trautmann 1916:93. Holotype female; Germany: Bromberg (BERLIN).

*maculatum* Trautmann 1927:60. (*purpurascens* var.). Type ?; Germany: Lemberg (BERLIN).

*misdroyensis* Trautmann 1927:60. (*purpurascens* var.). Type ?; Germany: Misdroy (BERLIN).

*purum* Kimsey. Nearctic: w USA.

*purum* Kimsey 1978:625. Holotype male; USA: Utah, Box Elder Co., Kelton (DAVIS).\*

*rasile* Bohart. Nearctic: w USA (California).

*rasile* Bohart 1978:626. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS).\*

*reticulatum* Abeille. Palaearctic: Spain, s France, Portugal, North Africa.

*reticulatum* Abeille 1879:3. (*minutum* var.). Holotype female; France (PARIS).\*

*hispanicum* Buysson (In Andre) 1892:202. Holotype male; Spain: Madrid (PARIS).\*

*rhodesiacum* (Mocsáry). Afrotropical: Zambia.

*rhodesiacum* (Mocsáry) 1914:4. (*Holopyga*). Holotype female; Zambia: mid Luangwa Valley (LONDON).\*

*rhodinum* Semenov and Nikol'skaya. Palaearctic: s USSR.

*rhodinum* Semenov and Nikol'skaya 1954:99. Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Ruidasht (LENINGRAD).\*

*rhodochlorum* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*rhodochlorum* (Semenov and Nikol'skaya) 1954:107. (*Cladiola*). Holotype female; Tadzhik SSR: Mikoyanabad (LENINGRAD).\*

*rosaceum* (Semenov and Nikol'skaya) 1954:108. (*Cladiola*). Holotype female; Tadzhik SSR: Mikoyanabad (LENINGRAD).N. synonymy.\*

*rhodojanthinum* Enslin. Palaearctic: Cyprus, Turkey.

*rhodojanthinum* Enslin 1939:106. Holotype male; Cyprus (LUZERN).

*mutense* Linsenmaier 1968:130. (*rhodojanthinum* ssp.). Holotype female; Turkey: Mut (LUZERN).



*roborovskii* Semenov. Palaearctic: nw China.

*roborovskii* Semenov 1967:129. Holotype female; China: Sachzou oasis, Gashun Gobi (LENINGRAD).\*

*robustum* Kimsey. Afrotropical: South Africa.

*robustum* Kimsey 1988e:203. Holotype male; South Africa: Cape Prov., Wellington, Rooshoek (DAVIS).\*

*roseum* (Rossi). Palaearctic: widespread.

*roseum* (Rossi) 1790:75. (*Chrysis carnea* var.). Type ?; Italy (Mus. ?).

*lampas* (Christ) 1791:405. (*Chrysis*). Holotype; Europe (Mus. ?).

*rufum* (Panzer) 1801:F79 T16. (*Chrysis*). Type ?; Germany (Mus. ?).

*rosae* (Dahlbom) 1829:13. (*Chrysis*). Type ?; Switzerland (Mus. ?).

*nanum* (Chevrier) 1870:266. (*Hedychrum*). Holotype male; Switzerland: Lemman area (Mus.?).

*erschovi* (Radoszkowski) 1877:6. (*Hedychrum*). Syntypes; Uzbek SSR: Fergana, Sarafshchan Valley (MOSCOW ?).

*suave* (Tournier) 1878:308. (*Hedychrum*). Holotype female; Switzerland: Lemman area (GENEVA).

*caputaurum* Trautmann (in Trautmann and Trautmann) 1919:32. (*roseum* var). Holotype; Germany: 'Bronnaberg' (BERLIN).

*bohemicum* Spaček 1935:117. (*roseum* ssp.). Type ?; Czechoslovakia (Mus. ?).

*sudeticum* Spaček 1935:118. (*roseum* ssp.). Type ?; Czechoslovakia (Mus. ?).

*nitens* Hoffer 1937a:65. (*roseum* f.). Type ?; Czechoslovakia (Mus. ?). Invalid name.

*spaceki* Hoffer 1937a:66. (*roseum* f.). Type ?; Czechoslovakia (Mus. ?). Invalid name.

*cypricum* Balthasar 1954a:54. (*roseum* var.). Holotype; Cyprus (PRAGUE).

*turanum* (Semenov) 1954a:103. (*Euchrum*). Holotype male; USSR: 'Dzhulek' (LENINGRAD).\*

*lampadum* Linsenmaier 1959a:58. Invalid emendation of *lampas* Christ 1791.

*limassolense* Linsenmaier 1959a:59. (*lampadum* ssp.). Unnec. repl. name for *cypricum* Balthasar 1954a.

*sorianum* Linsenmaier 1959a:59. (*lampadum* ssp.). Holotype male; Spain: Soria (LUZERN).

*rotundum* Nurse. Palaearctic: India.

*rotundum* Nurse 1904:20. Holotype female; India: Deesa (LONDON ?).

*rubrum* Linsenmaier. Palaearctic: Turkey.

*rubrum* Linsenmaier 1968:128. Holotype male; Turkey: Mut (LUZERN).

*sapphirinum* (Semenov). Palaearctic: s USSR.

*sapphirinum* (Semenov) 1954a:104. (*Zarudnidium*). Holotype female; Uzbek SSR: Khodzha-Galton (LENINGRAD).\*

*satunini* Semenov. Palaearctic: sw USSR (Georgia).

*satunini* Semenov 1967:127. Holotype female; Georgian SSR: Tbilisi (LENINGRAD).\*

*scintilla* Semenov. Palaearctic: s USSR.

*scintilla* Semenov 1954a:96. Lectotype female (desig. Kimsey 1986c); Kazakh SSR: Peter the Great Range (LENINGRAD).\*

*sculpturatum* (Abeille). Palaearctic: s Europe, sw USSR.

*sculpturatum* (Abeille) 1877:65. (*Hedychrum*). Type ?; France: La Penne (PARIS).\*

*caucasicum* Trautmann 1926a:5. Syntypes; Yugoslavia: 'Macedonia', USSR: Caucasus (BERLIN).

*insulare* Balthasar 1954a:55. (*sculpturatum* var.). Holotype female; Cyprus: Limassol (PRAGUE).

*scutellare* Tournier. Palaearctic: Europe.

*scutellare* Tournier 1878:309. Holotype male; Italy: Sicily, Syracuse (GENEVA).

*mediocre* Linsenmaier 1959a:63. Holotype male; Yugoslavia: Soria (LUZERN).

*tunisiense* Linsenmaier 1959a:64. (*mediocre* ssp.). Holotype male; Tunisia: Kairouan (LUZERN).

*sardiniense* Linsenmaier 1959b:235. (*mediocre* ssp.). Holotype female; Italy: Sardinia (LUZERN).

*selectum* Nurse. Palaearctic: Pakistan.

*selectum* Nurse 1902:306. Holotype male; Pakistan: Quetta (LONDON).\*

*semenovi* Kimsey. Palaearctic: s USSR.

*semirufum* (Semenov and Nikol'skaya) 1954:107. (*Cyrteuchridium*). Holotype female; Uzbek SSR: Dzhilikul (LENINGRAD). Nec Cockerell 1896.\*

*semenovi* Kimsey. N. repl. name for *semirufum* Semenov and Nikol'skaya 1954.

*semiluteum* Linsenmaier. Palaearctic: Cyprus.

*semiluteum* Linsenmaier 1959a:60. Holotype female; Cyprus: Yermasoyia Hills (LUZERN).

*semirufum* (Cockerell). Nearctic: sw USA (Arizona, New Mexico).

*semirufum* (Cockerell) 1896:17. (*Holopyga*). Holotype female; USA: New Mexico, Las Cruces (WASHINGTON).\*

*senegalense* Kimsey. Afrotropical: Senegal.

*senegalense* Kimsey 1988e:204. Holotype male; Senegal: N'Dierba (WASHINGTON).\*

*sericifrons* (Semenov). Palaearctic: s USSR.

*sericifrons* (Semenov) 1967:134. (*Cyrteuchrum*). Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*sevillanum* Linsenmaier. Palaearctic: Spain.

*sevillanum* Linsenmaier 1968:28. Holotype female; Spain: Seville (LUZERN).

*sexdentatum* Buysson. Palaearctic: North Africa.

*sexdentatum* Buysson 1898a:126. Holotype male; Egypt: Zeitoun (PARIS).\*

*seyrigi* Zimmermann. Afrotropical: Madagascar.

*seyrigi* Zimmermann 1956:144. Holotype male; Madagascar: Ankaratra (PARIS).\*

*sinuatum* Edney. Afrotropical: South Africa.

*sinuatum* Edney 1940:69. Holotype male; South Africa: Cape Prov., Matjiesfontein (LONDON).\*

*smaragdinum* (Semenov). Palaearctic: Iran.

*smaragdinum* (Semenov) 1954b:143. (*Homaleuchrum*). Holotype male; Iran: Bampur, Gunich (LENINGRAD).\*

*solierellae* Bohart and Brumley. Nearctic: sw Canada, w USA, nw Mexico.

*solierellae* Bohart and Brumley 1967:234. Holotype male; USA: California, Colusa Co., Arbuckle (DAVIS).\*

*soloriens* (Semenov). Palaearctic: s USSR.

*soloriens* (Semenov) 1954b:144. (*Actineuchrum*). Lectotype male (desig. Kimsey 1986c); Turkmen SSR: Imam-Baba (LENINGRAD).\*

*stoekcheri* Linsenmaier. Palaearctic: Europe.

*stoekcheri* Linsenmaier 1959a:53. Holotype female; Switzerland: Wallis (LUZERN).

*valesianum* Linsenmaier 1959a:53. (*stoekcheri* ssp.). Holotype female; Switzerland: Wallis (LUZERN).

*subauratum* (Mocsáry). Afrotropical: South Africa.

*subauratum* (Mocsáry) 1902b:537. (*Holopyga*). Holotype male; South Africa: Orange Free State, Bothaville (PRETORIA-TM).\*

*subroseum* Linsenmaier. Palaearctic: North Africa, sw Europe.

*subroseum* Linsenmaier 1959a:60. Holotype female; Tunisia: Carthage (LUZERN).

*prochloropygum* Linsenmaier 1959a:60. (*subroseum* ssp.). Holotype female; France: Callian (LUZERN).

*subtilissimum* Edney. Afrotropical: Zimbabwe.

*subtilissimum* Edney 1940:64. Holotype male; Zimbabwe: Bulawayo (CAPE TOWN).\*

*sulcatum* (Mocsáry). Afrotropical: South Africa.

*sulcatum* (Mocsáry) 1890:53. (*Holopyga*). Holotype male; South Africa: Cape Prov. (PRETORIA-TM).\*

*susterai* Balthasar. Palaearctic: Jordan.

*susterai* Balthasar 1953:145. Holotype female; Jordan: Jericho (PRAGUE).

*tayabicum* Cockerell. Oriental: Philippines.

*tayabicum* Cockerell 1927:275. Holotype; Philippines: Luzon, Tayabas Prov., Lucban (Mus?).

*tenerifense* Linsenmaier. Palaearctic: Canary Isls.

*tenerifense* Linsenmaier 1968:32. Holotype male; Spain: Canary Isls., Tenerife, Los Cristianos (LONDON).\*

*trossulus* (Semenov). Palaearctic: s USSR.

*trossulus* (Semenov) 1954a:96. (*Euchrydium*). Holotype male; Tadzhik SSR: Hissar Range, Mura Pass (LENINGRAD).\*

*tsunekii* Linsenmaier. Palaearctic: Korea.

*tsunekii* Linsenmaier 1959a:60. Holotype male; Korea (LUZERN).

*turanicum* Semenov. Palaearctic: s USSR.

*turanicum* Semenov 1954a:97. Holotype female; Tadzhik SSR: Balamurun, Karatau (LENINGRAD).\*

*tyro* (Trautmann). Palaearctic: Egypt.

*tyro* (Trautmann) 1926b:92. (*incrassatum* var). Holotype; Egypt: Kerdace (CAIRO ?).

*ultimum* Edney. Afrotropical: South Africa.

*ultimum* Edney 1940:79. Lectotype female (desig. Kimsey herein); South Africa: Cape Prov., Cape Town (LONDON).\*

*uncinatum* Edney. Afrotropical: Zimbabwe.

*uncinatum* Edney 1940:76. Holotype male; Zimbabwe: Bulawayo (CAPE TOWN).\*

*urfanum* Linsenmaier. Palaearctic: Turkey.

*urfanum* Linsenmaier 1968:128. Holotype female; Turkey: Urfa (LUZERN).

*uvarovi* Semenov. Palaearctic: sw USSR (Georgia).

*uvarovi* Semenov 1967:129. Holotype female; Georgian SSR: Stavropol (LENINGRAD).\*

*vachali* Mercet. Palaearctic: Spain.

*vachali* Mercet 1915:158. Holotype female; Spain: Madrid, Montarco (MADRID).

*valesiense* Linsenmaier. Palaearctic: central and e Europe, s USSR.

*valesiense* Linsenmaier 1959a:62. Holotype male; Switzerland: Wallis (LUZERN).

*verboeffi* Linsenmaier. Palaearctic: se Europe, Middle East, Egypt.

*verboeffi* Linsenmaier 1959a:50. Holotype male; Greece: Corfu Isl. (LUZERN).

*yermasoyiense* Linsenmaier 1959a:50. (*verboeffi* ssp.). Holotype female; Cyprus: Yermasoyia River (LUZERN).

*libanense* Linsenmaier 1987:139. (*verboeffi* ssp.). Holotype female; Lebanon: Cedars (LUZERN).

*viridisulcatum* Linsenmaier. Palaearctic: Greece, Turkey.

*viridisulcatum* Linsenmaier 1968:25. Holotype female; Greece: Pyrgos (Peloponnes) (LUZERN).



*vulgare* Edney. Afrotropical: Zimbabwe.

*vulgare* Edney 1940:73. Lectotype male (desig. Kimsey herein); Zimbabwe: Bulawayo (CAPE TOWN).\*

*wolffi* Linsenmaier. Palaearctic: Italy (Sardinia).

*wolffi* Linsenmaier 1959b:234. Holotype female; Italy: Sardinia (LUZERN).

*wroughtoni* Buysson. Palaearctic: India.

*wroughtoni* Buysson 1896:466. Lectotype female (desig. Kimsey 1986c); India: Central Prov. (PARIS).\*

*xanthum* (Semenov). Palaearctic: s USSR.

*xanthum* (Semenov) 1967:134. (*Cyrteuchrum*). Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*zavattari* (Zimmermann). Palaearctic: Ethiopia.

*zavattari* (Zimmermann) 1952:358. (*Tetrachrydium*). Type ?; Ethiopia (VIENNA).

*zelleri* (Dahlbom). Palaearctic: Europe.

*zelleri* (Dahlbom) 1845:2. (*Hedychrum*). Syntypes; Germany: 'Glogavia and Silesia' (LUND ?).

*preciosum* Trautmann 1926a:5. (*zelleri* var.). Type ?; Germany: Bromberg (BERLIN).

*zimmermanni* Balthasar. Palaearctic: Middle East, Algeria.

*zimmermanni* Balthasar 1953:146. Holotype female; Jordan: Wadi el Kelt (PRAGUE).

*feroculum* Linsenmaier 1959a:56. (*zimmermanni* ssp.). Holotype female; Algeria: Biskra (LAUSANNE).

*znoikoi* (Semenov). Palaearctic: s USSR.

*znoikoi* (Semenov) 1967:135. (*Cyrteuchrum*). Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

## *Hedychrum* Latreille (Figs 63 and 64)

*Hedychrum* Latreille 1802:317. Type: *Chrysis lucidula* Fabricius 1775:358 (= *Sphex nobilis* Scopoli 1763:792). Monobasic.

*Cymura* Dahlbom 1845:4. Type: *Cymura splendidula* Dahlbom 1845:4 (= *Hedychrum coelestinum* Spinola 1838:454). Monobasic.

*Wollmania* Mocsáry 1909:2. Type: *Wollmania concinna* Mocsáry 1909b:2. Monobasic.

## Generic diagnosis

Face with sparse erect setae; scapal basin deeply concave, with transverse cross-ridging (Fig. 64a, b); malar space less than 1 MOD; base of oral fossa with a sharp tooth (Fig.

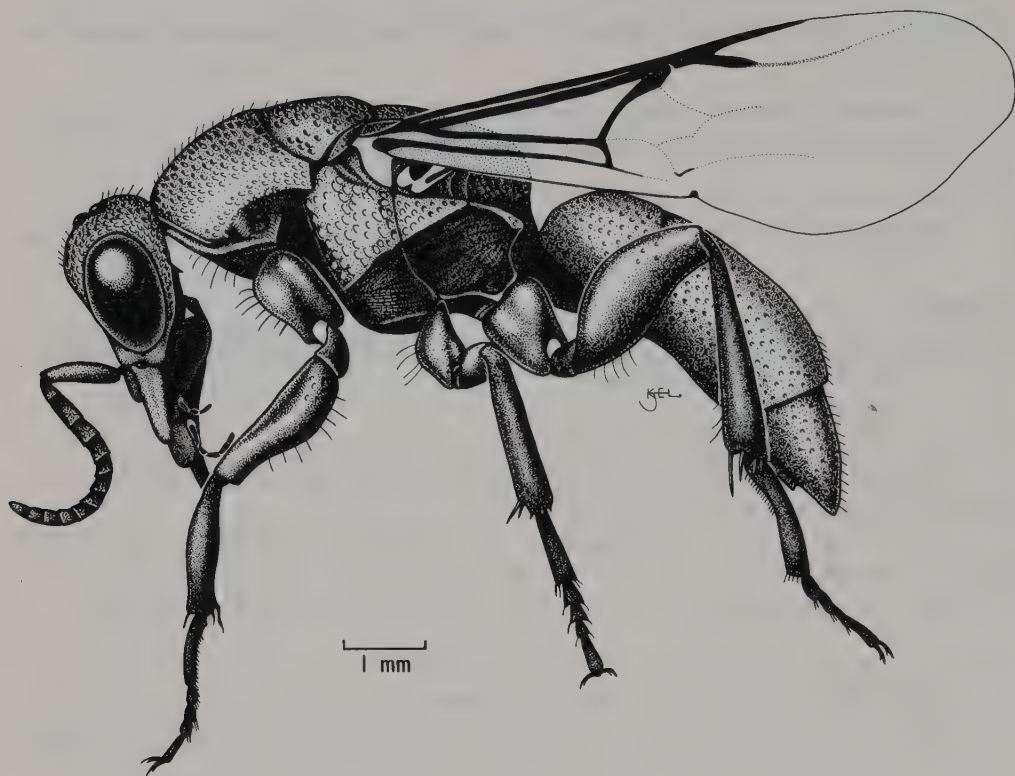


Fig. 63. *Hedychrum coelestinum*, male.

63); pronotum with anteromedial pit; notauli sulciform; mesopleuron rounded, with indistinct omaulus and short scrobal sulcus (Fig. 63); metanotum rounded or rarely mucronate; propodeum without medial enclosure, with medial carina (Fig. 64l); mid and hind tibia with pit or depression on inner surface (Fig. 64j, k), rarely without; hind femur enlarged, anterior surface brown and microreticulate in males; tarsal claws with subparallel tooth, appearing apically bifid (Fig. 64i); fore wing medial vein slightly curved, arising at cu-a, stigma slender and apically acute (Fig. 63); T-III usually with lateral tooth and subapically swollen, rarely with four apical teeth (Fig. 64f, g); female S-III with sub-basal sulcus extending toward mid-line and often with apicomедial tubercle (Fig. 64c-e); volsella divided into digitus and cuspis (Fig. 64h).

## Hosts

Few hosts have been reported for *Hedychrum* but all are Sphecidae in the subfamily Philanthinae. Grandi (1961) gave *Cerceris sabulosa* Panzer as the host of *gerstaeckeri*, and

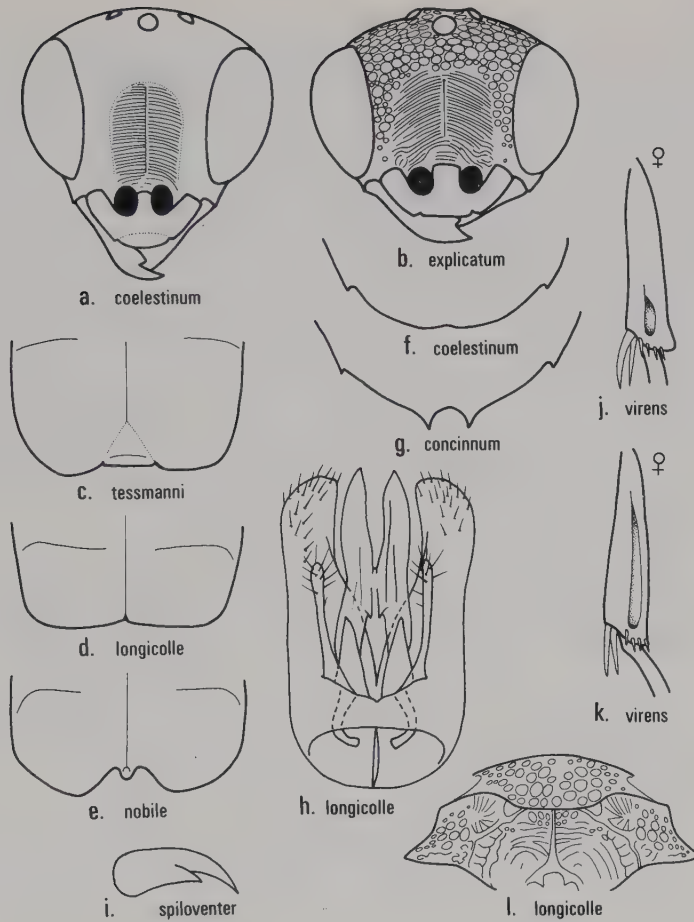


Fig. 64. *Hedychrum*. (a), (b) face; (c)–(e) female S-III; (f), (g) T-III, apical rim; (h) genital capsule, ventral; (i) hind tarsal claw; (j), (k) hind tibia, inner surface; (l), propodeum, posterior. Male, except as indicated.

in North America Byers (1978) reared an undetermined species of *Hedychrum* from *Cerceris halone* Banks. *Hedychrum simile* was observed by Tsuneki (1970a) leaving the nest of *Cerceris arenaria* L. Abeille (1877) reported rearing *longicolle* and *sculpturatum* from the cells of *Halictus* but this record is questionable.

## Distribution

The Eastern Hemisphere has the highest diversity of *Hedychrum*, with 65 species in the Palearctic Region, 47 in Africa south of the Sahara, 4 in Madagascar, and 14 Oriental. In the Western Hemisphere there are 11 North American species and 5 South American.

## Discussion

*Hedychrum* comprises a distinctive and closely related group of species, characterized by the mid and hind tibial pits, tooth at the base of the oral fossa, enlarged hind femur, modified female S-III, and special propodeal sculpture. Coloration is one of the most useful diagnostic features for species distinctions. The presence and extent of blue or green on S-II and -III is of critical importance. Males tend to have more extensive metallic coloration on S-II and -III. Species from the Americas and Afrotropical Region tend to be entirely blue or green, except *cupricolle* which has the pronotum, scutum, scutellum, and metanotum bright green to brassy, and contrasting strongly with the rest of the body. Palaearctic species also tend to be bicoloured, but with a blue, green, or purple thorax, and brassy to coppery abdomen. Females of many of these, including *nobile*, *aureicolle*, *longiulle*, and *chalybaeum*, may have a strikingly bicoloured thorax similar to that of *cupricolle*. The shape and presence or absence of mid and hind tibial pits are also important characters. Finally, the shape or absence of the apicomedial tooth on the female S-III distinguishes many species.

This is a diverse but structurally conservative genus. There are few differences in lengths of flagellar articles, facial dimensions, or other sculptural features. Even the lengths of the clypeus (subantennal distance) or malar space vary only rarely. *H. coelestinum* can be recognized immediately by the unusually long clypeus.

Unlike most other elampines, sex determination in *Hedychrum* is relatively simple. Females have the modified S-III with sub-basal sulci and apicomedial tooth (Fig. 64c-e). The anterior surface of the hind femur is reticulate and non-metallic brown in males, and shiny green or blue in females. In addition, many Palaearctic species have much more brightly coloured females than males. In the species listed above with a bicoloured thorax in females, the male thorax is entirely blue, green, or purple.

*Hedychrum* has only been revised on a regional basis, for Europe (Linsenmaier 1959a, b, 1987), southern Africa (Edney 1940), and North America (French in Bohart and Kimsey 1982).

## Checklist of *Hedychrum*

---

*abdominale* Edney. Afrotropical: South Africa.

*abdominale* Edney 1940:84. Holotype female; South Africa: Natal, Durban, Stella Bay (DURBAN).\*

*abyssinicum* Mocsáry. Palaearctic: Ethiopia.

*abyssinicum* Mocsáry 1914:8. Holotype female; Ethiopia: Marako (BUDAPEST).\*

*alexii* Semenov. Palaearctic: s USSR.

*alexii* Semenov 1967:144. Holotype female; Kazakh SSR: Zaisan (LENINGRAD).\*

*alluaudi* Buysson. Afrotropical: Madagascar.

*alluaudi* Buysson 1904:258. Holotype male; Madagascar: Vallee du Fanjahira Isaka (PARIS).\*



*amaniense* Bischoff. Afrotropical: Tanzania, Zaire.

*amaniense* Bischoff 1910:441. Lectotype male (desig. Kimsey herein); Tanzania: Amani, Derema, Usambara (BERLIN).\*

*anakaratrae* Zimmermann. Afrotropical: Madagascar.

*anakaratrae* Zimmermann 1961b:304. Holotype male; Madagascar: Anakaratra (PARIS).\*

*aureicolle* Mocsáry. Palaearctic: Europe, Turkey, Middle East.

*aureicolle* Mocsáry 1889:168. Lectotype female (desig. Móczár 1964b); Greece: Rhodes Isl. (BUDAPEST).\*

*rhodocyprum* Linsenmaier 1987:137 (*aureicolle* ssp.). Holotype female; Cyprus: Limassol (LUZERN).

*azrael* Semenov. Palaearctic: Iran.

*azrael* Semenov 1967:141. Holotype male; Iran: Nuristan (LENINGRAD).\*

*aztecum* Mocsáry. Neotropical: Central America.

*aztecum* Mocsáry 1911b:459. Holotype male; Mexico (BUDAPEST).\*

*beershebense* Linsenmaier. Palaearctic: Israel.

*beershebense* Linsenmaier 1969:372. Holotype female; Israel: Beersheba (LUZERN).

*bleusei* Buysson. Palaearctic: Middle East, North Africa.

*bleusei* Buysson 1898a:127. (*cirtanum* var.). Syntype male, female; Algeria: Sidi-Okba (PARIS).\*

*israelium* Linsenmaier 1959a:36. (*bleusei* ssp.). Holotype female; 'Palestine' (LUZERN).

*bobarti* French. Nearctic: w USA, nw Mexico.

*bobarti* French 1982:76. Holotype male; USA: California, Mono Co., 11 mi n Bridgeport (DAVIS).\*

*bouyssonii* Buysson. Afrotropical: Zaire.

*bouyssonii* Buysson 1900:129. Holotype male; Zaire: Libreville (PARIS).\*

*brasilianum* Dahlbom. Neotropical: Brazil.

*brasilianum* Dahlbom 1854:59. Holotype; Brazil (TURIN).\*

*braunsianum* Mocsáry. Afrotropical: South Africa.

*braunsianum* Mocsáry 1908b:506. Holotype male; South Africa: Johannesburg (PRETORIA-TM).\*

*brevicolle* Mocsáry. Afrotropical: South Africa.

*brevicolle* Mocsáry 1908b:507. Holotype male; South Africa: Johannesburg (BUDAPEST ?).

*brevinotum* Edney. Afrotropical: Zimbabwe, South Africa.

*brevinotum* Edney 1940:107. Holotype male; Zimbabwe: Mt. Selinda (CAPE TOWN).\*

*brevisi* Edney. Afrotropical: n South Africa, Zimbabwe Namibia.

*brevisi* Edney 1940:89. (*gonomaculatum* var.). Holotype male; Basutoland: Medikani River (DURBAN). N. status.\*

*comptum* Edney 1940:105. Holotype female; Zimbabwe: West Nicholson (CAPE TOWN). N. synonymy.\*

*chalybaeum* Dahlbom. Palaearctic: widespread.

*chalybaeum* Dahlbom 1854:64. Syntypes; Europe (Mus. ?).

*szaboi* Mocsáry 1889:167. Lectotype female (desig. Móczár 1964b); Germany: Thuringia (BUDAPEST).\*

*komarovi* Semenov 1967:138. Holotype female; China: Han Shui (LENINGRAD). N. synonymy.\*

*martynovi* Semenov 1967:138. Holotype male; China: Langashi (LENINGRAD). N. synonymy.\*

*cholodkovskii* Semenov. Palaearctic: s USSR.

*cholodkovskii* Semenov 1967:143. Holotype male; Kazakh SSR: Semipalatinsk (LENINGRAD).\*

*cirtanum* Gribodo. Palaearctic: Algeria.

*cirtanum* Gribodo 1879:338. Syntype male, female; Algeria (GENOA).

*minusculum* Buysson 1898a:128. (*cirtanum* var.). Holotype male; Algeria: Sidi-Okba (Mus.?).

*coelestinum* Spinola. Afrotropical: widespread; Palaearctic: North Africa.

*coelestinum* Spinola 1838:454. Syntypes; Egypt (TURIN).

*splendidulum* (Dahlbom) 1845:4. (*Cymura*). Holotype male; 'Bosfor' (STOCKHOLM).

*stilboides* Walker 1871:9. Lectotype male (desig. Kimsey 1986c); Egypt (LONDON).\*

*coerulescens* Chevrier. Palaearctic: Switzerland.

*coerulescens* Chevrier 1862:87. Holotype female; Switzerland: Leman area (GENEVA). Nec Lepeletier 1806.

*colonicum* Mocsáry. Afrotropical: Ethiopia, Kenya.

*colonicum* Mocsáry 1911b:453. Holotype male; Ethiopia: Eritrea, Ghinda (BUDAPEST).\*

*concinnum* (Mocsáry). Palaearctic: Turkey, s USSR.

*concinnum* (Mocsáry) 1909:2. (*Wollmannia*). Holotype male; Kazakh SSR: Baigakum, Djulek (BUDAPEST).\*

*confusum* Buysson. Nearctic: widespread.

*confusum* Buysson 1891:30. Lectotype male (desig. French 1982); USA: 'D. C.' (PARIS).\*

*affinissimum* Bischoff 1910:444. Holotype female; USA: Pennsylvania (type destroyed).

*nearcticum* Mocsáry 1914:11. Lectotype female (desig. French 1982); USA: 'Alabama' (LEIDEN).\*

*consobrinum* Mocsáry. Afrotropical: Tanzania.

*consobrinum* Mocsáry 1911b:455. Holotype male; Tanzania: Arusha- Ju (BUDAPEST).\*

*crassinotum* Edney. Afrotropical: Zimbabwe.

*crassinotum* Edney 1940:91. Holotype male; Zimbabwe: Bulawayo (CAPE TOWN).\*

*crassipes* Bischoff. Afrotropical: South Africa.

*crassipes* Bischoff 1910:444. Holotype male; South Africa: Cape Prov. (BERLIN).\*

*cribratum* Mocsáry. Palaearctic: s USSR, Cyprus.

*cribratum* Mocsáry 1909:1. Holotype male; Kazakh SSR; Syr- Daria: Karatau Mountains (BUDAPEST).\*

*zarudnyi* Semenov 1954a:108. Holotype female; Kazakh SSR: Baigakum (LENINGRAD). N. synonymy.\*

*trapezicolle* Semenov 1967:138. Holotype female; Turkmen SSR: Kharki (LENINGRAD). N. synonymy.\*

*cribricolle* Semenov. Palaearctic: s USSR.

*cribricolle* Semenov 1967:144. Holotype male; Kazakh SSR: Dzhabbul (LENINGRAD).\*

*cupricolle* Cresson. Nearctic: USA, s Canada.

*cupricolle* Cresson 1865b:305. Lectotype female (desig. Cresson 1916); USA: 'Colorado' (PHILADELPHIA).\*

*cyaneum* Brullé. Afrotropical: South Africa.

*cyaneum* Brullé 1846:52. Holotype male; South Africa: Cape Prov. (TURIN).

*davidi* Buysson. Palaearctic: China.

*davidi* Buysson 1900:131. Holotype female; China: Peking (PARIS).\*

*distinctum* Edney. Afrotropical: South Africa.

*distinctum* Edney 1940:113. Holotype male; South Africa: Cape Prov., Dunbrody (GRAHAMSTOWN).

*dunbrodiense* Edney. Afrotropical: South Africa.

*dunbrodiense* Edney 1940:94. (*emendatum* var.). Holotype male; South Africa: Cape Prov., Dunbrody (GRAHAMSTOWN).\*

*ecuadoricum* Mocsáry. Neotropical: Ecuador, Peru.

*ecuadoricum* Mocsáry 1911b:459. Holotype female; Ecuador: Guayaquil (BUDAPEST).\*

*explicatum* Edney. Afrotropical: Zimbabwe.

*explicatum* Edney 1940:117. Syntype males; Zimbabwe: eastern border (CAPE TOWN).\*

*flammulatum* Smith. Oriental: Celebes.

*flammulatum* Smith 1858:26. Holotype male; Celebes: Makassar (OXFORD).\*

*formosanum* Mocsáry. Oriental: Taiwan.

*formosanum* Mocsáry 1911b:458. Holotype male; Taiwan: Takao (BUDAPEST).\*

*frivaldskyi* Mocsáry. Palaearctic: sw USSR, Turkey.

*frivaldskyi* Mocsáry 1889:164. Holotype male; USSR: Caspian Sea (BUDAPEST).\*

*gerstaeckeri* Chevrier. Palaearctic: widespread, Taiwan.

*gerstaeckeri* Chevrier 1869:47. Holotype female; Switzerland: Leman area (GENEVA).

*obscurum* Tournier 1878:308. Holotype; Switzerland: Valais (Mus. ?).

*marianum* Mocsáry 1911b:450. Lectotype female (desig. French 1986); China (BUDAPEST).\*

*formosaiense* Linsenmaier 1959a:41. (*gerstaeckeri* ssp.). Holotype male; Taiwan (LEIDEN).

*gracile* Semenov. Palaearctic: China.

*gracile* Semenov 1967:139. Holotype female; China: Han Shui Prov. (LENINGRAD).\*

*gracilentum* Mocsáry. Palaearctic: India.

*gracilentum* Mocsáry 1911b:456. Holotype male; India: Lonauli (BUDAPEST).\*

*gratiosum* Marquet. Palaearctic: France.

*gratiosum* Marquet 1879:157. Based on but predating Abeille 1881.

*gratiosum* Abeille 1881:157. Holotype; France (PARIS ?).

*haughianum* Buysson. Afrotropical: Gabon.

*haughianum* Buysson 1903a:600. Holotype female; Gabon: Bas-Ogoove near Lambarene (PARIS).\*

*hoberlandti* Balthasar. Palaearctic: Turkey.

*hoberlandti* Balthasar 1954b:73. Holotype female; Turkey: Edirne (PRAGUE).

*hyrcanum* Semenov. Palaearctic: Iran.

*hyrcanum* Semenov 1967:137. Holotype female; Iran: Astrabad (LENINGRAD).\*

*incarum* Mocsáry. Neotropical: South America.

*incarum* Mocsáry 1911b:461. Holotype female; Peru: Pachitea (BUDAPEST).\*

*insulare* Mocsáry. Afrotropical: Madagascar.

*insulare* Mocsáry 1908a:267. Holotype male; Madagascar (BUDAPEST).\*

*jacobsoni* Semenov. Palaearctic: s USSR.

*jacobsoni* Semenov 1954a:109. Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Karatau, Balamurun (LENINGRAD).\*

*janthinum* Dahlbom. Afrotropical: South Africa.

*janthinum* Dahlbom 1854:62. Holotype; South Africa: Cape Prov., 'Cap. bon.' (COPENHAGEN).

*japonicum* Cameron. Palaearctic: Japan.

*japonicum* Cameron 1887:123. Holotype male; Japan: Fukui (LONDON).\*

*kamerunum* Bischoff. Afrotropical: central and s Africa.



- kamerunum* Bischoff 1910:442. Holotype female; Cameroon: 'Nordl. hinterland' (BERLIN).\*
- aptum* Edney 1940:106. Holotype female; Zimbabwe: Sanyati Valley (CAPE TOWN). N. synonymy.\*
- katanganum* Mocsáry. Afrotropical: Zaire.
- katanganum* Mocsáry 1914:9. Holotype female; Zaire: Katanga, Kambove (LONDON).\*
- katbergense* Edney. Afrotropical: South Africa.
- katbergense* Edney 1940:116. Lectotype male (desig. Kimsey herein); South Africa: Cape Prov., Katberg (LONDON).\*
- kozhantshevikovi* Semenov. Palaearctic: s USSR.
- kozhantshevikovi* Semenov 1967:144. Holotype male; Kazakh SSR: Baigakum (LENINGRAD).\*
- krugeri* Invrea. Palaearctic: Libya.
- krugeri* Invrea 1932:43. Holotype male; Libya: Agedabia (GENOA).
- laevigatum* Mocsáry. Afrotropical: s and e Africa.
- laevigatum* Mocsáry 1911b:451. Holotype female; South Africa: Cape Prov., 'Terra Capensis' (BUDAPEST).\*
- shiratiense* Mocsáry 1911b:453. Lectotype female (desig. French 1986); Ethiopia: Katona, Shirati (BUDAPEST). N. synonymy.\*
- exspectatum* Edney 1940:86. Syntype males, females; South Africa: Cape Prov. (CAPE TOWN). N. synonymy.\*
- interruptum* Edney 1940:87. (*expectatum* var.). Holotype male; South Africa: Cape Prov., Aliwal North (LONDON). N. synonymy.\*
- emendatum* Edney 1940:92. Lectotype male (desig. Kimsey herein); Zimbabwe: Bulawayo (CAPE TOWN). N. synonymy.\*
- laevivittatum* Edney. Afrotropical: South Africa.
- laevivittatum* Edney 1940:100. Holotype male; South Africa: Cape Prov., Katberg (LONDON).\*
- disturbans* Edney 1940:101. (*laevivittatum* var.). Holotype male; South Africa: Natal, Durban (LONDON).\*
- lama* Buysson. Palaearctic: Mongolia.
- lama* Buysson 1891:31. Lectotype male (desig. Kimsey herein); Mongolia: Kansu-Kobden-Owatu (PARIS).\*
- latitudum* Linsenmaier. Palaearctic: Manchuria.
- latitudum* Linsenmaier 1959a:39. Holotype male; China: Manchuria, Charbin (LUZERN).
- lewisi* (Cameron). Palaearctic: Japan.
- lewisi* (Cameron) 1887:124. (*Holopyga*). Holotype female; Japan: Hitoyoshi (LONDON).\*
- longicollis* Abeille. Palaearctic: s Europe, North Africa, s USSR, China.

- longicollae* Abeille 1877:65. Syntypes; France: Marseille, Toulon (PARIS).\*
- collare* Semenov 1892c:73. Holotype female; Russian SFSR: Sarepta (LENINGRAD ?).
- semipurpureum* Semenov 1954a:108. Holotype male; Kazakh SSR: Iman-Baba (LENINGRAD).\*
- nobiliforme* Semenov 1967:139. Holotype male; Russian SFSR: Vladivostok (LENINGRAD).  
N. synonymy.\*
- luculentum* Förster. s Europe Middle East.
- luculentum* Förster 1853:343. Syntype females; Italy, Greece: Crete (BERLIN).
- bytinskii* Linsenmaier 1959a:38. (*luculentum* ssp.). Holotype female; 'Palestine' (LUZERN).
- lugubre* Cameron. Palaearctic: India.
- lugubre* Cameron 1897a:6. Holotype male; India: Bengal (LONDON).\*
- lydenburgense* Bischoff. Afrotropical: South Africa.
- lydenburgense* Bischoff 1910:443. Holotype female; South Africa: Transvaal, Lydenburg (BERLIN).\*
- manchurianum* Tsuneki. Palaearctic: Manchuria.
- manchurianum* Tsuneki 1950:64. Holotype female; China: Manchuria, Kai-Yuan (TSUKUBA).
- massaicum* Cameron. Afrotropical: Zaire, Tanzania.
- massaicum* Cameron 1910b:299. Holotype female; Tanzania: Kilimandjaro (LUND).\*
- maximum* Bischoff. Afrotropical: Namibia South Africa.
- maximum* Bischoff 1910:442. Holotype female; Namibia: Omburu (BERLIN).\*
- mavromoustakisi* Trautmann. Palaearctic: se Europe.
- mavromoustakisi* Trautmann 1929:157. Holotype male; Cyprus: Limassol (BERLIN).
- menzbieri* Semenov. Palaearctic: Iran.
- menzbieri* Semenov 1967:143. Holotype female; Iran: Luristan (LENINGRAD).\*
- micans* Lucas. Palaearctic: North Africa, Portugal, Spain.
- micans* Lucas 1849:313. Syntypes; Algeria: Oran (PARIS).\*
- europaeum* Linsenmaier 1959a:39. (*micans* ssp.). Holotype female; Portugal (LUZERN).
- mitbras* Semenov. Palaearctic: sw USSR (Georgia).
- mitbras* Semenov 1967:140. Holotype male; Georgian SSR: Kodzhory, Tbilisi (LENINGRAD).\*
- morosum* Buysson. Palaearctic: Egypt.
- morosum* Buysson 1900:130. Holotype male; Egypt: Herouem (PARIS).\*
- mucronatum* Zimmermann. Afrotropical: Madagascar.
- mucronatum* Zimmermann 1956:145. Holotype female; Madagascar: Ivondro (PARIS).\*

*natalense* Mocsáry. Afrotropical: South Africa, Zimbabwe, Tanzania.

*natalense* Mocsáry 1911b:456. Holotype male; South Africa: Natal, Howick (BUDAPEST).\*

*arnoldi* Edney 1940:94. Lectotype male (desig. Kimsey herein); South Africa: Natal, Scottburgh (CAPE TOWN). N. synonymy.\*

*neotropicum* Mocsáry. Neotropical: Argentina, s Brazil.

*neotropicum* Mocsáry 1889:164. Holotype male; Brazil: New Friburg (HALLE ?).

*niemelai* Linsenmaier. Palaearctic: Switzerland.

*niemelai* Linsenmaier 1959a:38. (*aureicollae* ssp.). Holotype female; Switzerland: Wallis (LUZERN).

*nigrocyanum* Edney. Afrotropical: South Africa.

*nigrocyanum* Edney 1940:98. Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov., Worcester (LONDON).\*

*nigrofemoratum* Bischoff. Afrotropical: Tanzania, South Africa.

*nigrofemoratum* Bischoff 1910:441. Holotype male; Tanzania: Dar-es-Salaam, Waldungen (BERLIN).\*

*nigromaculatum* Edney. Afrotropical: South Africa.

*nigromaculatum* Edney 1940:108. Lectotype female (desig. Kimsey 1986c); South Africa: Cape Prov., Katberg (LONDON).\*

*nigropilosum* Mocsáry. Nearctic: sw Canada, w USA, nw Mexico.

*nigropilosum* Mocsáry 1889:162. Lectotype male (desig. French 1982); USA: California, 'Mariposa' (LEIDEN).\*

*nobile* (Scopoli). Palaearctic: widespread.

*nobile* (Scopoli) 1763:297. (*Sphex*). Holotype female; Austria (Lost ?).

*lucidulum* (Fabricius) 1775:358. (*Chrysis*). Syntypes; Europe (COPENHAGEN).

*carbunculus* (Geoffroy) 1785:440. (*Vespa*). Type ?; Europe (Mus. ?).

*viridis* (Geoffroy) 1785:441. (*Vespa*). Type ?; Europe (Mus. ?).

*regia* (Fabricius) 1793:243. (*Chrysis*). Holotype; 'Kiliae' (Lost ?).

*alterum* Lepeletier 1806:122. Syntype male, female; France: Meudon (PARIS ?).

*aulicum* Spinola 1843:129. Type ?; Spain (Lost ?).

*longipilis* Tournier 1877:106. Syntype female, male; Italy, Switzerland (GENEVA).

*semiviolaceum* Mocsáry 1889:165. Lectotype male (desig. Móczár 1964b); Hungary (BUDAPEST).\*

*antigai* Buysson (in André) 1896:713. (*nobile* var.). Holotype male; Spain: Barcelona (PARIS).\*

*lepeletieri* Buysson 1898b:563. (*nobile* var.). Holotype male; locality ? (PARIS)

*buyssoni* Linsenmaier 1959a:37. (*nobile* ssp.). Unnecessary repl. name for *antigai* Buysson 1891.

*obliquum* Edney. Afrotropical: South Africa.

*obliquum* Edney 1940:115. Lectotype female (desig. Kimsey herein); South Africa: Cape Prov., Katberg (LONDON).\*

*obscuripes* Buysson. Palaearctic: Algeria.

*obscuripes* Buysson 1898a:127. (*cirtanum* var.). Holotype male; Algeria: Sidi-Okba (PARIS ?).

*okai* Tsuneki. Palaearctic: Japan.

*okai* Tsuneki 1954:37. Holotype male; Japan: Sapporo (TSUKUBA).

*ordinatum* Edney. Afrotropical: Zimbabwe.

*ordinatum* Edney 1940:90. Lectotype female (desig. Kimsey herein); Zimbabwe: Chirinda Forest, Mt. Selinda (CAPE TOWN).\*

*palliditarsis* Edney. Afrotropical: Zimbabwe, Zaire, Tanzania.

*palliditarsis* Edney 1940:112. Lectotype female (desig. Kimsey herein); Zimbabwe: Chipinga Dist. (CAPE TOWN).\*

*parvulum* Mocsáry. Palaearctic: Ethiopia.

*parvulum* Mocsáry 1914:8. Holotype male; Ethiopia: Harar (LONDON).\*

*parvum* Aaron. Nearctic: widespread.

*parvum* Aaron 1885:223. (*violaceum* var.). Lectotype male (desig. Cresson 1928); USA: 'Montana' (PHILADELPHIA).\*

*polygoni* (Rohwer) 1909:87. (*Hedychridium*). Holotype female; USA: Colorado, Boulder (WASHINGTON).\*

*penultimum* Edney. Afrotropical: South Africa.

*penultimum* Edney 1940:110. Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov., Mossel Bay (LONDON).\*

*philippinum* Mocsáry. Oriental: Philippines.

*philippinum* Mocsáry 1913c:287. Holotype female; Philippines: Luzon (BUDAPEST).\*

*phoebus* Semenov. Palaearctic: s USSR.

*phoebus* Semenov 1967:142. Holotype male; Uzbek SSR: Min-Bulak (LENINGRAD).\*

*provinciale* Mocsáry. Afrotropical: Ethiopia.

*provinciale* Mocsáry 1911b:454. Holotype female; Ethiopia: Eritrea, Asmara (BUDAPEST).\*

*punctigerum* Mocsáry. Palaearctic: s USSR.

*punctigerum* Mocsáry 1909b:2. Lectotype female (desig. French 1986); Kazakh SSR: Mt. Karatau (BUDAPEST).\*

*punctulatum* Mocsáry. Afrotropical: South Africa, Zimbabwe.

*punctulatum* Mocsáry 1911b:452. Holotype female; South Africa: Cape Prov., 'Terra Capensis' (BUDAPEST).\*



- gonomaculatum* Edney 1940:88. Lectotype female (desig. Kimsey herein); Zimbabwe (CAPE TOWN). N. synonymy.\*
- punctum* French. Nearctic: e USA.
- punctum* French 1982:80. Holotype male; USA: Virginia, Great Falls (DAVIS).\*
- radoszkowskyi* Buysson. Palaearctic: Algeria.
- radoszkowskyi* Buysson (In André) 1893:213. Holotype male; Algeria (KRAKOW ?).
- rubrum* Edney. Afrotropical: South Africa.
- rubrum* Edney 1940:97. Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov., Belmont (LONDON).\*
- rufipes* Buysson. Palaearctic: Italy.
- rufipes* Buysson (in André) 1893:228. (*gerstaeckeri* var.). Holotype female; Italy: Sardinia (GENOA ?).
- biskrense* Buysson 1900:130. (*longicollis* var.). Type ? (Mus. ?).
- lepidum* Linsenmaier 1959a:42. (*rufipes* ssp.). Holotype male; Israel: Naharia (LUZERN).
- rutilans* Dahlbom. Palaearctic: s Europe, North Africa, Turkey, sw USSR.
- rutilans* Dahlbom 1854:76. Lectotype sex ? (desig. Morgan 1984); Europe (LUND).
- viridiaureum* Tournier 1877:106. Holotype female; Switzerland: Lemman area (GENEVA ?).
- viridiauratum* Mocsáry 1889:175. (*rutilans* var.). Syntypes; Algeria: Setif (Mus. ?). Nec Tournier 1877.
- perfidum* Buysson (In André) 1893:219. (*rutilans* var.). Syntype male, female; France, Spain, Armenia (PARIS).\*
- veterrinum* Mocsáry 1914:11. (*rutilans* var.). Lectotype male (desig. French 1986); Turkey: Buyuk Agri Dagi (Mt. Ararat). (BUDAPEST).\*
- persicum* Mocsáry 1914:11. (*rutilans* var.). Holotype male; 'Persia' (LONDON).\*
- micans* Trautmann and Trautmann 1919:32. (*rutilans* var.). Type ?; Germany: Erlangen (BERLIN). Nec Lucas 1846.
- uniformis* Trautmann 1927:75. (*rutilans* var.). Holotype; Albania (BERLIN).
- ermak* Semenov 1967:142. (*intermedium* ssp.). Holotype male; Russian SFSR: Siberia, Inusinsk region (LENINGRAD).\*
- subparvulum* Linsenmaier 1968:19. (*intermedium* ssp.). Holotype female; Greece: Peloponnes (LUZERN).
- sapphirinum* Semenov. Palaearctic: s USSR.
- sapphirinum* Semenov 1954a:109. Holotype male; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*
- scrobiculatum* Edney. Afrotropical: South Africa.
- scrobiculatum* Edney 1940:119. Holotype male; South Africa: Cape Prov., Aliwal North (LONDON).\*

*sculptiventre* Buysson. Palaearctic: North Africa.

*sculptiventre* Buysson 1888:2. Holotype male; Algeria: Oran (PARIS ?).

*scutellare* Linsenmaier. Palaearctic: Jordan.

*scutellare* Linsenmaier 1969:373. Holotype female; Jordan: Jericho (LUZERN). Nec Tournier 1878.

*semicyaneum* Mocsáry. Palaearctic: s USSR.

*semicyaneum* Mocsáry 1889:168. Holotype female; Uzbek SSR: Tashkent (BUDAPEST).\*

*severtzovi* Semenov. Palaearctic: s USSR.

*severtzovi* Semenov 1967:143. Holotype male; Kazakh SSR: Baigakum (LENINGRAD).\*

*simile* Mocsáry. Palaearctic: USSR, Manchuria, China, Korea, Japan, Mongolia.

*cyaneum* Radoszkowski 1889:10. Holotype male; Russian SFSR: 'Siberia orientalis' (KRAKOW ?). Nec Brullé 1846.

*simile* Mocsáry 1889:157. Repl. name for *cyaneum* Radoszkowski 1889. (invalid lectotype female desig. French 1986).

*marianum* Uchida 1925: p ? Type ? (HOKKAIDO)

*pullatum* Tsuneki 1953b:23. Syntype male, female; Japan: Shoyozan, Keijo (TSUKUBA).

*aereum* Tsuneki 1970a:34. (*simile* spp.). Holotype female; Japan: Chiba (TSUKUBA).

*sinicum* Semenov. Palaearctic: n China.

*sinicum* Semenov 1967:140. Holotype male; China: Sechuan Prov. (LENINGRAD).\*

*solsky* Radoszkowski. Palaearctic: s USSR.

*solsky* Radoszkowski 1877:7. Syntype male, female; Kazakh SSR: Kyzyl-Kum desert (MOSCOW ?).

*spiloverter* French. Nearctic: w USA, Mexico.

*spiloverter* French 1982:82. Holotype male; USA: Utah, Cache Co., Cornish (DAVIS).\*

*spinum* Blanchard. Palaearctic: France.

*spinum* Blanchard 1840:296. Type ?; France: Paris (PARIS ?).

*spinigerum* Mocsáry. Afrotropical: South Africa.

*spinigerum* Mocsáry 1914:10. Holotype female; South Africa: Cape Prov., Prince Albert (BUDAPEST).\*

*stantoni* Ashmead. Oriental: Philippines.

*stantoni* Ashmead 1904:283. Holotype male; Philippines: Manila (WASHINGTON).\*

*stevensoni* Edney. Afrotropical: Zimbabwe, South Africa.

*stevensoni* Edney 1940:102. Holotype male; Zimbabwe (CAPE TOWN).\*

*striatum* Mocsáry. Oriental: Malaysia.

*striatum* Mocsáry 1911b:457. Holotype female; Malaysia: Malacca, Perak (BUDAPEST).\*

*taiwanense* Tsuneki. Oriental: Taiwan.

*taiwanense* Tsuneki 1970b:5. Holotype male; Taiwan: Liyuchih Prov., Hualien (TSUKUBA).

*takasago* Tsuneki. Oriental: Taiwan.

*takasago* Tsuneki 1970b:4. Holotype female; Taiwan: Chuchi Prov., Chiai (TSUKUBA).

*tessmanni* Bischoff. Afrotropical: Guinea, Zambia, South Africa, Zimbabwe.

*tessmanni* Bischoff 1910:442. Holotype female; Guinea: Makomo (BERLIN).\*

*testaceum* Linsenmaier. Palaearctic: North Africa, Middle East.

*testaceum* Linsenmaier 1968:20. Holotype female; Israel: Beersheba (TEL AVIV).\*\*

*theresia* Mocsáry. Neotropical: Bolivia, Venezuela.

*theresia* Mocsáry 1911b:460. Holotype female; Bolivia: Mapiri (BUDAPEST).\*

*timidum* Dahlbom. Palaearctic: India.

*timidum* Dahlbom 1854:65. Syntypes; India: Bengal (COPENHAGEN).

*unicolor* Balthasar. Palaearctic: Middle East.

*unicolor* Balthasar 1953:148. Holotype male; Israel: Jerusalem (PRAGUE).

*vernale* Cresson. Nearctic: Cuba.

*vernale* Cresson 1865a:104. Holotype male; Cuba (PHILADELPHIA).\*

*cyaniventre* Cresson 1865a:104. Lectotype male (desig. Cresson 1916); Cuba (PHILADELPHIA).\*

*violaceum* Brullé. Nearctic: USA (widespread).

*violaceum* Brullé 1846:51. Neotype male (desig. French 1982); USA: New Jersey: Cape May (DAVIS).\*

*louisianae* Norton 1879:238. Lectotype male (desig. Cresson 1928); USA: 'La' (PHILADELPHIA).\*

*virens* Dahlbom. Palaearctic: se Europe, s USSR, Middle East, Turkey.

*virens* Dahlbom 1854:74. Syntype male, female; 'Rossa meridionali', Portugal: Lusitania (BERLIN).

*flavitate* Costa 1858:19. Type ?; Italy (NAPLES).

*phoenix* Buysson 1888:2. Holotype female; Israel: Tiberias (PARIS ?).

*grande* Tournier 1890:23. Syntype male, female; Russian SFSR: Sarepta (Mus. ?).

*caucasicum* Mocsáry 1889:171. (*virens* var.). Holotype male; USSR: 'Transcaucasia' (VIENNA).

*petri* Semenov 1967:142. (*virens* var.). Holotype female; Kazakh SSR: Chilik, foothills of Zailiyski Alatau (LENINGRAD).\*

*wiltii* Cresson. Nearctic: w USA.

*wiltii* Cresson 1865b:305. Lectotype male (desig. Cresson 1916); USA: 'Colo.' (PHILADELPHIA).\*

*waltliia* Norton of Dalla Torre 1892:35, in error.

*Holophris* Mocsáry (Figs 65 and 66)

*Holophris* Mocsáry 1890:51. Type: *Ellampus marginellus* Mocsáry 1890:51. Orig. design. and monobasic.

**Generic diagnosis**

Scapal basin deep and smooth, asetose (Fig. 66*a*); malar space usually less than 1 MOD; gena usually with subgenal area enclosed by carinae below malar space (Fig. 66*b*); head lenticular, with carinate and angulate post-ocular margin; pronotum flattened laterally, sometimes with small deep pit (Fig. 66*d*); head, pronotum, and scutum dorsomedially impunctate (Fig. 66*c*); mesopleuron with scrobal carina strongly fore shortened, omaulus double, extending nearly horizontally from ventral apex of pronotum to scrobe (Fig. 66*d*), transpleural carina extending below propodeal tooth, signum carina usually present; scutellum with two flattened areas along anterior margin (Fig. 66*c*); metanotum broadly rounded; fore wing medial cell asetose, medial vein strongly arched and arising before cu-a, Cu elongate before juncture of cu-a, stigma short, broad and apically rounded (Fig. 65); fore femur ventrally carinate and somewhat broadened subapically; tarsal claws with two or three subsidiary teeth (Fig. 66*g*); T-I-III strongly convex, T-III with broad transparent rim, without apicomedial notch (Fig. 65).

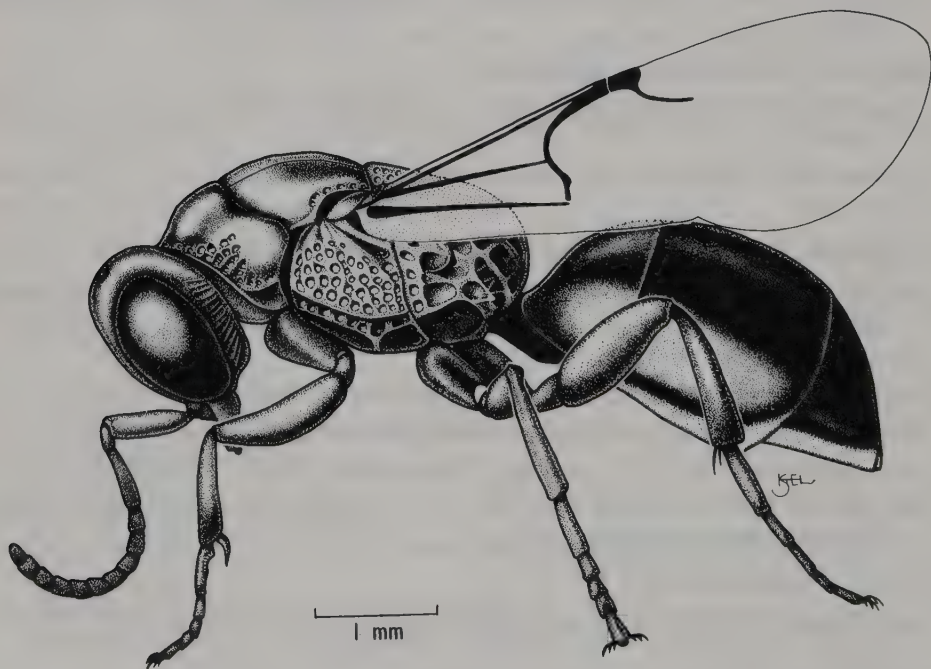


Fig. 65. *Holophris borneanum*, male.



## Hosts

Unknown.

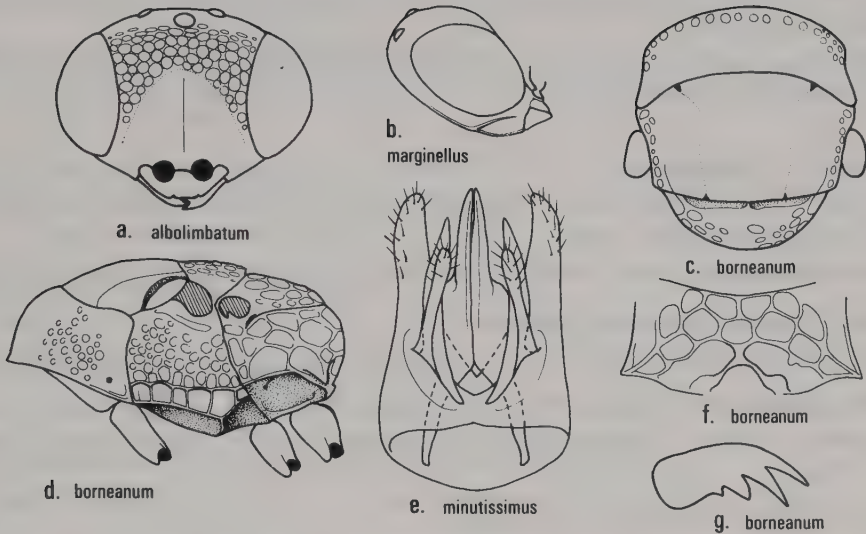


Fig. 66. *Holophris*. (a) face; (b) head, lateral; (c) thorax, dorsal; (d) thorax, lateral; (e) genital capsule, ventral; (f) propodeum, posterior face; and (g) hind tarsal claw. Male, except as indicated.

## Distribution

Most *Holophris* are in tropical regions. This genus appears to have diversified in the tropics with four Afrotropical, four Oriental, one Australian, and six Neotropical species, whereas the other genera derived from *Omalus* are far more common in north temperate regions. Eight species of *Holophris* are recorded from the Palaearctic Region. We have not seen the types of many of these and have had to rely on the original descriptions for generic placement. In some instances this placement may be incorrect as *Holophris* is rare in unsorted material from this region.

## Discussion

*Holophris* is the most highly modified of the genera related to *Omalus*. The structure of the mesopleuron is a unique feature, with the scrobal carina very short and omaulus elongate, double, and positioned nearly horizontally. The double omaulus is less distinct in Neotropical species, but in all *Holophris* the transpleural carina passes below the propodeal tooth. This character combined with the impunctate scutum will distinguish *Holophris* from all other chrysids. Additional diagnostic features are the presence of two flattened areas on the anterior margin of the scutellum, T-III with a

broad transparent rim, and most species with a clearly delimited subgenal area.

Species distinctions are based to a large extent on coloration and thoracic sculpture. The dominant Afrotropical species, *coriaceus*, is completely shagreened, without polished areas of integument. In *albomarginatus* the vertex and pronotum are strikingly coppery or bronzy. The extent of punctation on the vertex and scutellum are also useful species characteristics.

We have not found any reliable way of determining the sex of *Holophris* specimens without exserting the genitalia.

### Checklist of *Holophris*

---

*abeillei* (Buysson). Palaearctic: Spain.

*abeillei* (Buysson) (In André) 1893:159. (*Philoctetes*). Holotype male; Spain (PARIS).\*

*abyssinicus* (Mocsáry). Palaearctic: Ethiopia.

*abyssinicus* (Mocsáry) 1914:1. (*Ellampus*). Holotype female; Ethiopia: Harrar (BUDAPEST).\*

*albolimbatus* (Ducke). Neotropical: Mexico to Brazil and Peru.

*albolimbatus* (Ducke) 1908b:52. (*Ellampus*). Syntype females; Brazil: Belem, Obidos (BELEM? ).

*araraticus* (Radoszkowski). Palaearctic: Turkey.

*araraticus* (Radoszkowski) 1890:508. (*Ellampus*). Holotype; Turkey: Buyuk Agri Dagi (Mt. Ararat) (KRAKOW ?).

*borneanus* (Cameron). Oriental: Borneo, Philippines.

*borneanus* (Cameron) 1908:61. (*Hedychrum*). Holotype; Borneo: Kuching (LONDON).\*

*bakeri* (Mocsáry) 1913c:287. (*Ellampus*). Holotype male (not female); Philippines: Luzon (BUDAPEST). N. synonymy.\*

*chobauti* (Buysson). Palaearctic: North Africa, Mallorca.

*chobauti* (Buysson) (In André) 1896:710. (*Philoctetes*). Holotype (sex undeterminable); Algeria: Ghardaia (PARIS).\*

*confusus* (Kimsey). Afrotropical: South Africa.

*confusus* (Kimsey) 1988a:6. (*Omalus*). Holotype female; South Africa: Cape Prov., Grahamstown, Hilton (GRAHAMSTOWN).\*

*coriaceus* (Dahlbom). Afrotropical: widespread.

*coriaceus* (Dahlbom) 1850:135. (*Omalus*). Holotype female; South Africa: 'Caffraria' (Mus?).

*caffer* (Edney) 1940:41. (*Philoctetes*). Holotype female; Zimbabwe: Mt. Selinda (CAPE TOWN). N. synonymy.\*

*friesei* (Mocsáry). Palaearctic: Spain.

*friesei* (Mocsáry) 1889:109. (*Elampus*). Holotype female; Spain: Balearic Isl., Mallorca (BERLIN).

*herbstii* (Mocsáry). Neotropical: Chile.

*herbstii* (Mocsáry) 1911b:445. (*Ellampus*). Lectotype male (desig. French 1986); Chile: Concepcion (BUDAPEST).\*

*huberi* (Ducke). Neotropical: Brazil, Paraguay, Argentina, Trinidad, Venezuela.

*huberi* (Ducke) 1901:356. (*Ellampus*). Holotype female; Brazil: Para (Mus. ?).

*hyalinomarginatus* (Bischoff). Neotropical: Venezuela.

*hyalinomarginatus* (Bischoff) 1910:438. (*Philoctetes*). Holotype male; Venezuela: Caracas (BERLIN, destroyed).

*imbecillus* (Mocsáry). Palaearctic: s USSR, Turkey, Iran.

*imbecillus* (Mocsáry) 1889:98. (*Ellampus*). Lectotype female (desig. French 1986); Turkmen SSR: Pendigkent (BUDAPEST).

*insperatus* Mocsáry. Australian: n Australia.

*insperatus* Mocsáry 1914:2. Holotype female; Australia: Queensland, Mackay (LONDON).\*

*kalliopsis* Zimmermann. Afrotropical: Madagascar.

*kalliopsis* Zimmermann 1961b:300. Holotype female; Madagascar: Ivondro (PARIS).\*

*marginellus* (Mocsáry). Oriental: Sumatra, Philippines, Borneo, Vietnam.

*marginellus* (Mocsáry) 1890:51. (*Ellampus*). Holotype female; Sumatra (ZURICH).

*minutissimus* (Brèthes). Neotropical: Argentina, Peru.

*minutissimus* (Brèthes) 1903:265. (*Ellampus*). Syntype females; Argentina: San Juan (BUENOS AIRES).\*

*punctatifrons* (Bischoff). Neotropical: Peru, Colombia, Brazil, Argentina.

*punctatifrons* (Bischoff) 1910:437. (*Philoctetes*). Holotype male; Colombia: Bogota (BERLIN, destroyed).

*scutellaris* (Bischoff) 1910:438. (*Philoctetes punctatifrons* var.). Holotype male; Paraguay: San Bernardino (BERLIN, destroyed).

*obtusus* (Buysson). Palaearctic: Algeria.

*obtusus* (Buysson) (in André) 1893:153. (*Philoctetes*). Holotype (sex undeterminable); Algeria: Bou-Kanetis (PARIS).\*

*purpureus* (Smith). Oriental: Celebes.

*purpureus* (Smith) 1860:68. (*Hedychrum*). Holotype female; Celebes: Makassar (OXFORD).\*

*striatus* (Edney). Afrotropical: Zimbabwe.

*striatus* (Edney) 1940:40. (*Philoctetes*). Syntype females; Zimbabwe: Bulawayo (CAPE TOWN).

*taiwanus* (Tsuneki). Oriental: Taiwan.

*taiwanus* (Tsuneki) 1970b:2. (*Omalus*). Holotype male; Taiwan: Nantou Prov., Chienching (TSUKUBA).

*timidus* (Nurse). Palaearctic: w Pakistan.

*timidus* (Nurse) 1902:305. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Pakistan: Peshin (LONDON).\*

---

*Holopyga* Dahlbom (Figs 7d, 67, and 68)

*Holopyga* Dahlbom 1845:4. Type: *Holopyga amoenula* Dahlbom 1845:4. Desig. by Ashmead 1902:227.

*Holopyga* Tournier 1878:305. Invalid emendation of *Holopyga* Dahlbom 1845.

*Pseudhedychrum* Abeille 1879:27. Type: *Chrysis fervida* Fabricius 1781:456. Desig. by Bodenstein 1939b:130.

*Oar* Semenov 1954b:142. Type: *Oar globulus* Semenov 1954b:144. Orig. desig. and monobasic.

*Psacas* Semenov 1954b:143. Type: *Psacas meda* Semenov 1954b:143. Orig. desig. and monobasic.

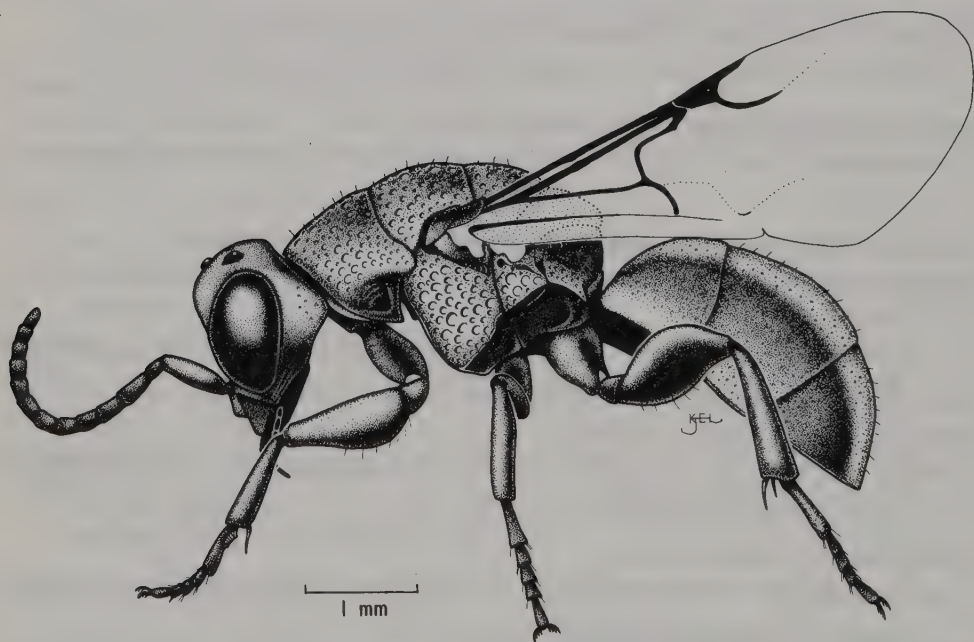


Fig. 67. *Holopyga amoenula*, male.



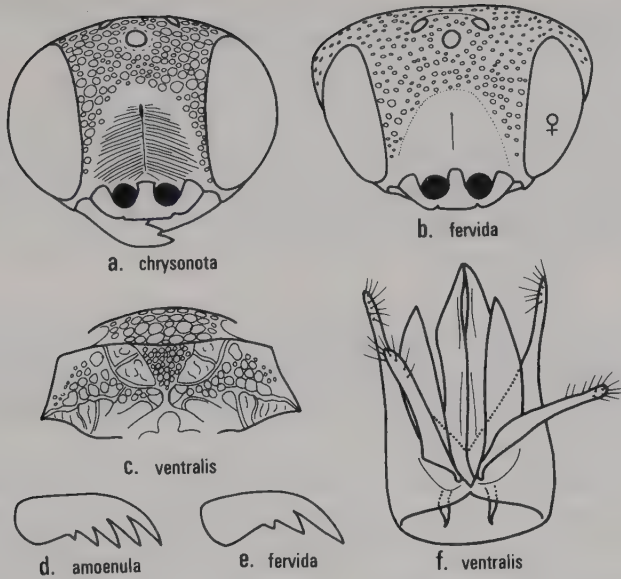


Fig. 68. *Holopyga*. (a), (b) face; (c) propodeum, posterior surface; (d), (e) hind tarsal claw; and (f) genital capsule. Male, except as indicated.

## Generic diagnosis

Facial setae sparse and erect; scapal basin deep and transversely cross-ridged (Fig. 68a); vertex with inter-ocellar sulcus; malar space less than 1 MOD; genal carina present; pronotum with anteromedial pit; mesopleuron strongly angulate, with well-developed verticulus, omaulus, signum, and scrobal carina (Fig. 67); notauli sulciform; scutellar wing fossa without anterior lobe; fore femur usually angulate sub-basally with ventral carina; hind tarsal claw with 2–5 (rarely 1) subsidiary teeth (Fig. 68d, e); fore wing medial vein strongly arched, arising at or slightly before cu-a, costa dilated medially, stigma short and broad, R1 clearly indicated (Fig. 7d and 67); T-III apical margin evenly rounded or somewhat indented medially, slightly swollen subapically; male genitalia (Fig. 68f), volsella with digitus and cuspis.

## Hosts

*Holopyga* is another large genus whose biology is poorly known, probably because these chrysidids attack ground-nesting sphecids wasps. In North America *Bicyrtes quadrifasciata* (Say) and *B. fodiens* (Handlirsch) have been reported as hosts of *ventralis* (Evans 1966). *Astata pinguis* Dahlbom is a host of *integrum* in Europe according to Else (1973). Móczár (1967a) and Linsenmaier (1959a) reported *Chalicodoma* sp. (Megachilidae) as the host of *ovata*. Mocsáry (1889) listed *Chalicodoma muraria* F. as the host of *amoenula*,

*Cerceris quadrifasciata* Panzer and *Mimumesa* (Vanderl.) as hosts of *ignicollis*, and *rugosa* on *Sceliphron madraspatanum* (F.) (as *Pelopoëus separatus* Sm.).

## Distribution

Species occur in all zoogeographic regions, with the majority in the Palaearctic. There are 67 Palaearctic species, 8 Nearctic, 7 Neotropical, 3 Asian, 1 in Australia, 1 in Madagascar, and 4 in Africa south of the Sahara.

## Discussion

*Holopyga* are generally large heavy-bodied wasps, ranging in length from 4–8 mm. They can be distinguished by the sharply angulate fore wing medial vein, setose medial cell, multidentate tarsal claws, carinate and angulate mesopleuron, angulate postocular region, and cross-ridged scapal basin.

A number of Palaearctic species are sexually dimorphic, particularly *amoenula* and *fervida*, which are two of the most commonly collected species. In these species males tend to be blue and green, at least on the thorax, and females coppery red.

The name *gloriosa* F. has been used for years for one of the commonest European species, *amoenula*. Surprisingly, upon examining the type, we discovered that *gloriosa* is actually a synonym of *Pseudomalus auratus* and not a species of *Holopyga* (Kimsey 1988b).

Linsenmaier (1987) described the genus *Chamaeholopyga* based on the new species *parvicornis* Linsenmaier (1987). We have been unable to see this species and therefore cannot render judgment on the placement of this group.

## Checklist of *Holopyga*

*amoena* Mocsáry. Palaearctic: Middle East.

*amoena* Mocsáry 1911b:446. (*mlokosiewitzi* var.). Holotype female (Mus. ?); Syria (BUDAPEST).\*

*amoenula* Dahlbom. Palaearctic: Europe, North Africa, Siberia.

*edentula* (Schrank) 1804:344. (*Chrysis*). Type ?; Germany: 'Boica' (Mus. ?). Nec Rossi 1792.

*amoenula* Dahlbom 1845:4. Holotype male; Greece: Rhodes Isl. (STOCKHOLM).\*

*fastuosa* (Lucas) 1849:313. (*Hedychrum*). Holotype; Algeria: Constantine (PARIS ?).

*inflammata* (Förster) 1853:348. (*Ellampus*). Syntype male, female; Italy, Hungary (BERLIN).

*ovata* Dahlbom 1854:51. Syntypes; Europe (BERLIN).

*splendida* Schenck 1856:48. Holotype; Germany (FRANKFURT ?).

*varia* Schenck 1856:50. Holotype; Germany (FRANKFURT ?).

*angustata* Schenck 1870:12 (1871:255 ?). Syntypes; 'Gegenden Deutschlands and Frankreich' (FRANKFURT ?).

*imperialis* Gradl 1881:300. Syntype male, female; Germany: Eger River Valley (Mus. ?).

- similis* Mocsáry 1889:124. Lectotype female (desig. Móczár 1964b); Hungary (BUDAPEST).\*
- caucasica* Mocsáry 1889:131. (*gloriosa* var.). Type ?; USSR: 'Transcaucasia' (VIENNA).
- hispanica* Tournier 1890:15. Syntype male, female; Spain (Mus. ?).
- deserticola* Buysson 1898a:125. (*gloriosa* var.). Holotype male; Algeria: Ghardaia (Mus. ?).
- turkestanica* Mocsáry 1909b:1. (*punctatissima* var.). Lectotype male (desig. French 1986); Kazakh SSR: Mt. Karatau (BUDAPEST).\*
- asiatica* Trautmann 1926a:5. (*gloriosa* var.). Type ?; Yugoslavia: Smyrna (BERLIN).
- virideaurata* Linsenmaier 1951:16. (*amoenula* var.). Holotype female; Greece: Rhodes Isl. (LUZERN).
- calida* Linsenmaier 1951:15. (*gloriosa* var.). Holotype female; Morocco (LAUSANNE).
- sardoa* Invrea 1952:222. (*amoenula* var.). Holotype; Italy: Sardinia (GENOA).
- varia* Zirngiebl 1953:169. (*gloriosa* var.). Holotype male; Germany: Pfalz (Mus. ?). Nec Schenck 1856.
- occidentia* Linsenmaier 1959a:31. (*amoenula* ssp.). Holotype male; France: Carpentras (LUZERN).
- oriensa* Linsenmaier 1959a:31. (*amoenula* ssp.). Holotype male; Turkey: Akschehir (LUZERN).
- reducta* Linsenmaier 1959a:30. (*punctatissima* ssp.). Holotype male; France: Frejus (LUZERN).
- proviridis* Linsenmaier 1959a:31. (*ovata* ssp.). Holotype male; Syria (LUZERN).
- effenata* Linsenmaier 1959b:234. (*ovata* ssp.). Holotype male; Cyprus (LUZERN).
- umesaoi* Tsuneki 1961:369. (*gloriosa* ssp.). Holotype female; Thailand: Doi Inthanon (KOBE).
- australis* Linsenmaier. Palaearctic: Austria, s USSR.
- australis* Linsenmaier 1959a:32. Holotype male; Austria (LUZERN).
- baeckmanni* Semenov. Palaearctic: s USSR.
- baeckmanni* Semenov 1967:144. Holotype female; Kazakh SSR: Baigakum (LENINGRAD).\*
- baumonti* Balthasar. Palaearctic: Jordan.
- baumonti* Balthasar 1953:131. Syntype females, male; Jordan: Jordan Valley (PRAGUE).
- bifigurata* Linsenmaier. Palaearctic: Middle East, Iran, Turkey.
- bifigurata* Linsenmaier 1968:18. Holotype female; Israel: Tel Aviv (LUZERN).
- bifrons* Abeille. Palaearctic: Algeria.
- bifrons* Abeille 1878:3. Holotype male; Algeria: Bône (PARIS).\*
- biskrana* Linsenmaier. Palaearctic: Algeria.
- biskrana* Linsenmaier 1959a:28. Holotype female; Algeria: Biskra (Naef Coll.).
- bogdanovii* Radoszkowski. Palaearctic: s USSR.
- bogdanovii* Radoszkowski 1877:5. Holotype male; Kazakh SSR: Sarafschan (MOSCOW).
- boutheryi* Bréthes. Neotropical: Argentina, Uruguay, s Brazil, Bolivia.
- boutheryi* Bréthes 1902:267. Holotype male; Argentina: San Juan Prov. (BUENOS AIRES).

- respublicana* Mocsáry 1914:3. Holotype male; Nicaragua (LONDON).\*
- braueri* Bischoff. Afrotropical: e Africa.
- braueri* Bischoff 1910:440. Holotype male; 'Nyassa-See: Langenburg' (BERLIN).
- capensis* Edney. Afrotropical: South Africa.
- capensis* Edney 1940:44. Lectotype male (desig. Kimsey 1986c); South Africa: Cape Prov.: Boukrans near Calvinia (LONDON).\*
- caudata* Abeille. Palaearctic: Algeria.
- caudata* Abeille 1878:2. Type ?; Algeria: Bône (PARIS).\*
- chrysonota* (Förster). Palaearctic: Europe, Turkey, North Africa, s USSR, Middle East.
- chrysonota* (Förster) 1853:347. (*Ellampus*). Holotype female; Hungary (BERLIN).
- generosa* (Förster) 1853:349. (*Ellampus*). Holotype male; Germany Nahe, Aachen (BERLIN).
- ignicollis* Dahlbom 1854:53. (*ovata* var., given as var. *b*). Type ?; Greece: Rhodes Isl. (BERLIN).
- aureomaculata* Abeille 1879:32. (*gloriosa* var.). Syntypes; France (PARIS).\*
- appliata* Linsenmaier 1959a:32. (*chrysonota* ssp.). Holotype female; Israel: Jaffa (LUZERN).
- jurinei* Chevrier 1862:95. Type ? (Mus. ?).
- discolor* Linsenmaier 1959a:32. (*chrysonota* ssp.). Holotype male; Morocco (LAUSANNE).
- padri* Linsenmaier 1987:136. (*ignicollis* ssp.). Holotype female; Czechoslovakia: Chotin (LUZERN).
- cingulata* Semenov. Palaearctic: s USSR.
- cingulata* Semenov 1967:146. Holotype male; Kazakh SSR: Baigakum (LENINGRAD).\*
- comosa* Semenov and Nikol'skaya. Palaearctic: s USSR.
- comosa* Semenov and Nikol'skaya 1954:112. Holotype female; Tadzhik SSR: Anzob (LENINGRAD).\*
- hirta* Semenov and Nikol'skaya 1954:111. Holotype male; Tadzhik SSR: Ruidasht (LENINGRAD). N. synonymy.\*
- crassepuncta* Semenov. Palaearctic: s USSR.
- crassepuncta* Semenov 1954a:110. Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Balamurun, Karatau foothills (LENINGRAD).\*
- proteus* Balthasar 1954b:72. (*gloriosa* var.). Holotype; Turkey: Mogan (PRAGUE).
- cribrata* (Klug). Palaearctic: Spain.
- cribrata* (Klug) 1835:90. (*Elampus*). Type ?; Spain (BERLIN).
- cupreata* Nurse. Palaearctic: India.
- cupreata* Nurse 1902:305. Lectotype male (desig. Kimsey herein); India: Kashmir (LONDON).\*
- cyaniventris* (Cresson). Nearctic: Cuba.



- cyaniventris* (Cresson) 1865a:104. (*Hedychrum*). Lectotype male (desig. Cresson 1916); Cuba (PHILADELPHIA).
- cypruscula* Linsenmaier. Palaearctic: Turkey, Cyprus, Middle East, Iran.
- cypruscula* Linsenmaier 1959a:34. Holotype female; Cyprus (LUZERN).
- detrita* Linsenmaier 1959a:34. (*cypruscula* ssp.). Holotype male; Iran: Kamal Abad (LUZERN).
- turca* Linsenmaier 1987:136. (*cypruscula* ssp.). Holotype female; Turkey: Urfa (LUZERN).
- deflexa* Abeille. Palaearctic: Egypt.
- deflexa* Abeille 1878:2. Type ?; Egypt (PARIS).\*
- enslini* Linsenmaier. Palaearctic: Turkey, Israel.
- enslini* Linsenmaier 1959a:27. Holotype male; Turkey: Ulu Kizlar (LUZERN).
- fascialis* Linsenmaier. Palaearctic: Israel.
- fascialis* Linsenmaier 1959a:28. Holotype male; Israel: Beersheba (LUZERN).
- fervida* (Fabricius). Palaearctic: Europe, Middle East, Turkey, North Africa.
- fervida* (Fabricius) 1781:456. (*Chrysis*). Lectotype female (desig. Kimsey 1987d); France: Paris (PARIS).\*
- nitida* (Lepelletier) 1806:123. (*Hedychrum*). Holotype male; France: Paris (PARIS ?).
- fellmanni* (Lucas) 1849:314. (*Hedychrum*). Holotype; France: Lacalle (PARIS ?).
- curvata* (Förster) 1853:344. (*Hedychrum*). Holotype; s. Europe (BERLIN).
- chalconota* (Förster) 1853:345. (*Hedychrum*). Syntype females; Italy, Hungary (BERLIN).
- chloroidea* (Dahlbom) 1854:66. (*Hedychrum*). Lectotype female (desig. Kimsey 1986c); France: Paris (PARIS).\*
- sicheli* Chevrier 1862:97. Type ? (Mus. ?).
- splendens* Chevrier 1869:44. Syntype females; France: Lyon (GENEVA ?).
- smaragdina* (Tournier) 1877:105. (*Halopyga*). Holotype female; Switzerland: Leman area (GENEVA).
- foveolata* De-Stefani 1888:119. (*fervida* var.). Type ?; Sicily (PALERMO).
- buyssoni* Mercet 1902:221. (*fervida* var.). Holotype female; Syria: Alexandria (Mus. ?).
- cyprica* Trautmann 1929:158. (*fervida* var.). Holotype male; Cyprus (BERLIN).
- violacea* Hoffmann 1935:228. (*curvata* var.). Holotype male; Austria: Vienna (VIENNA).
- globulus* (Semenov). Palaearctic: s USSR.
- globulus* (Semenov) 1954b:144. (*Oar*). Lectotype female (desig. Kimsey 1986c); Kazakh SSR: Balamurum, Karatau foothills (LENINGRAD).\*
- gogorzae* Trautmann. Palaearctic: Spain, Portugal.
- gogorzae* Trautmann 1926a:5. (*gloriosa* var.). Type ?; Spain: Castilia (BERLIN).
- gribodoi* Buysson. Palaearctic: Algeria.
- gribodoi* Buysson (in André) 1896:711. (*mlokosiewitzi* var.). Syntype male, female; Algeria (PARIS).\*
- guadarrama* Linsenmaier. Palaearctic: Spain.

- guadarrama* Linsenmaier 1987:135. Holotype male; Spain: Madrid (LUZERN).
- hortobagyensis* Móczár. Palaearctic: Algeria, Morocco.
- hortobagyensis* Móczár 1983:354. Holotype female; Hungary: Hortobagy Natl. Park (BUDAPEST).
- horus* Aaron. Nearctic: w USA, Mexico.
- horus* Aaron 1885:220. Lectotype female (desig. Cresson 1928); USA: Montana (PHILADELPHIA).\*
- continuum* (Aaron) 1885:224. (*Hedychrum*). Lectotype male (desig. Cresson 1928); USA: 'W.T.' (PHILADELPHIA).\*
- granadana* Linsenmaier. Palaearctic: Spain.
- granadana* Linsenmaier 1968:17. (*ignicollis* ssp.) Holotype female; Spain: Granada Prov. (LUZERN).
- iberingi* Buysson. Neotropical: Brazil.
- iberingi* Buysson 1901:99. Holotype female; Brazil: Rio Grande do Sul (PARIS).\*
- inaurata* Mocsáry. Palaearctic: Middle East, Egypt, sw USSR (Armenia).
- inaurata* Mocsáry 1914:3. (*mlokosiewitzi* var.). Type ?; Armenian SSR: Erivan (BUDAPEST).\*
- indica* Mocsáry. Palaearctic: India.
- indica* Mocsáry 1889:118. Syntype females; India (BUDAPEST).\*
- insperata* Mocsáry. Australian: ne Australia.
- insperata* Mocsáry 1889:119. Holotype male; Australia: Sydney (GENEVA).
- intermedia* (Dahlbom). Palaearctic: Europe.
- intermedia* (Dahlbom) 1845:3. (*Hedychrum*). Holotype male; France (PARIS).\*
- intersa* Linsenmaier. Palaearctic: Morocco.
- intersa* Linsenmaier 1959a:33. Holotype female; Morocco: Marrakech (LAUSANNE).
- italica* Dahlbom. Palaearctic: Italy.
- italica* Dahlbom 1845:4. Holotype male; Italy (Milde ?).
- janthina* Dahlbom. Afrotropical: South Africa.
- janthina* Dahlbom 1854:50. Syntypes; South Africa: Cape Prov. (COPENHAGEN, TURIN).
- densepunctata* Edney 1940:49. (*janthina* var.). Holotype; South Africa (LONDON).\*
- dispersipunctata* Edney 1940:49. (*janthina* var.). Lectotype male (desig. Kimsey 1986c); Namibia: Okahandya (LONDON).\*
- latifrons* Edney 1940:49. (*janthina* var.). Holotype male; Zimbabwe: Bulawayo (CAPE TOWN).
- minor* Edney 1940:48. (*janthina* var.). Holotype female; Zimbabwe: Tiger Kloof (CAPE TOWN).
- jucunda* Mocsáry. Palaearctic: se Europe.

- jucunda* Mocsáry 1889:150. Syntype male, female; Hungary, Austria (VIENNA).
- kaszabi* Móczár. Palaearctic: Mongolia.
- kaszabi* Móczár 1967b:187. Holotype male; Mongolia: Ostgobi aimak, 40 km nw Chara-Eireg (BUDAPEST).\*
- kozhanstshikovi* Semenov. Palaearctic: s USSR.
- kozhanstshikovi* Semenov 1954a:111. Lectotype male (desig. Kimsey 1986c); Kazakh SSR: Baigakum (LENINGRAD).\*
- kuthyana* Mocsáry. Palaearctic: Turkey.
- kuthyana* Mocsáry 1911b:446. Holotype female; Turkey: Gulek, Taurus (BUDAPEST).\*
- lata* Edney. Afrotropical: Namibia.
- lata* Edney 1940:46. Holotype male; Namibia: Omaruru (LONDON).\*
- lucida* (Lepeletier). Palaearctic: France, Italy.
- lucida* (Lepeletier) 1806:122. (*Hedychrum*). Syntype male, female; France: Soissons, Meudon (PARIS ?).
- luzulina* Dahlbom. Neotropical: widespread, Nearctic: Mexico, sw USA.
- luzulina* Dahlbom 1854:49. Syntype male, female; 'Brasilia' (TURIN).\*
- cressoni* (Norton) 1879:239. (*Hedychrum*). Holotype female; 'Mexico' (PHILADELPHIA).\*
- miliare* (Cameron) 1888:459. (*Hedychridium*). Holotype female; Guatemala: San Geronimo (LONDON).\*
- torosa* Mocsáry 1889:139. Holotype female; Brazil (DRESDEN, type destroyed).
- maculata* (Fabricius). Neotropical: Haiti, Santo Domingo.
- maculata* (Fabricius) 1798:258. (*Chrysis*). Holotype; Haiti: St. Dominique (PARIS).
- margiana* Semenov. Palaearctic: s USSR.
- margiana* Semenov 1967:145. Holotype male; Turkmen SSR: Bairam-Al (MOSCOW ?).
- mattheyi* Linsenmaier. Palaearctic: Morocco.
- mattheyi* Linsenmaier 1959a:27. Holotype female; Morocco (LUZERN).
- mavromoustakisi* Enslin. Palaearctic: Cyprus, Middle East.
- mavromoustakisi* Enslin 1939:107. Holotype male; Cyprus (LUZERN).
- mauritanica* (Lucas). Palaearctic: North Africa. s Spain.
- mauritanica* (Lucas) 1849:312. (*Hedychrum*). Holotype female; Algeria: Setif (PARIS).\*
- medvedevi* Semenov. Palaearctic: s USSR.
- medvedevi* Semenov 1967:147. Holotype male; Kazakh SSR: Shipovo Station near Ural'sk (LENINGRAD).\*
- merceti* Kimsey. Palaearctic: Spain.
- intermedia* Mercet 1904a:85. (*gloriosa* var.). Syntype male, female; Spain: Madrid, Montarco,

- El Escoria, Los Molinos (MADRID). Nec Dahlbom 1845.  
*merceti* Kimsey. N. repl. name for *intermedia* Mercet 1904a.
- metallica* (Dahlbom). Palaearctic: Finland.  
*metallica* (Dahlbom) 1854:68. (*Hedychrum*). Holotype; Finland (HELSINKI).
- mimeca* Kimsey. Nearctic: w USA.  
*mimeca* Kimsey 1982b:26. Holotype male; USA: California, Riverside Co., Desert Center (OTTAWA).\*
- minuma* Linsenmaier. Palaearctic: Turkey, se Europe, Middle East.  
*minuma* Linsenmaier 1959a:31. Holotype female; Turkey: Nigde (LUZERN).
- miranda* Abeille. Palaearctic: s France, Spain, Portugal.  
*miranda* Abeille 1878:2. Lectotype male (desig. Kimsey 1986c); France: Corsica (PARIS).\*
- mlokosiewitzi* (Radoszkowski). Palaearctic: Greece, Middle East, Turkey, sw USSR.  
*mlokosiewitzi* (Radoszkowski) 1876a:109. (*Hedychrum*). Syntypes; USSR: 'Caucasus' (KRAKOW ?).
- hemisimpla* Linsenmaier 1959a:27. (*mlokosiewitzi* ssp.). Holotype male; Turkey: Konia (LUZERN).
- igneae* Linsenmaier 1968:15. (*mlokosiewitzi* ssp.). Holotype male; Jordan: Jericho (LUZERN).
- spartana* Linsenmaier 1968:16. (*mlokosiewitzi* ssp.). Holotype male; Greece (LUZERN).
- monticola* Balthasar. Palaearctic: Afghanistan.  
*monticola* Balthasar 1957:145. Holotype female; Afghanistan: Sarekanola, Badakschan (PRAGUE).
- naefi* Linsenmaier. Palaearctic: Morocco.  
*naefi* Linsenmaier 1959a:26. Holotype male; Morocco (Naef Coll. ?).
- nitidula* Dahlbom. Palaearctic: France.  
*nitidula* Dahlbom 1845:4. Holotype male; France (Mus. ?).
- numidica* (Lucas). Palaearctic: North Africa, Israel.  
*numidica* (Lucas) 1849:311. (*Hedychrum*). Syntypes; Algeria: Lecalle (PARIS ?).
- nursei* Bingham. Palaearctic: Israel.  
*nursei* Bingham 1903:423. Holotype male; India: Deesa (LONDON).\*
- orientalis* (Smith). Oriental: Singapore.  
*orientalis* (Smith) 1858:128. (*Hedychrum*). Holotype; Singapore (Mus. ?).
- pavlovskii* Semenov and Nikol'skaya. Palaearctic: s USSR.  
*pavlovskii* Semenov and Nikol'skaya 1954:111. Holotype male; Tadzhik SSR: Kulyab (LENINGRAD).\*
- piliventris* Ducke. Neotropical: Argentina, Brazil, Bolivia, Paraguay, Colombia.  
*piliventris* Ducke 1908a:95. Syntype males; Brazil: Maranhão (Mus. ?).



*pulawskii* Linsenmaier. Palaearctic: s USSR.

*pulawskii* Linsenmaier 1968:14. Holotype female; USSR: 'Sudrussland' (LUZERN).

*punctatissima* Dahlbom. Palaearctic: s Europe, s Russia, Middle East, Egypt.

*punctatissima* Dahlbom 1854:50. Holotype; Greece: Rhodes Isl. (LUND). Nec Schenck 1856.

*pseudovata* Linsenmaier. Palaearctic: Spain.

*pseudovata* Linsenmaier 1987:135. Holotype female; Spain: Merida (LUZERN).

*pygmaea* Buysson. Palaearctic: Algeria, Israel.

*pygmaea* Buysson 1898a:125. (*gloriosa* var). Lectotype male (desig. Kimsey herein); Algeria: Mecheria (PARIS).\*

*raciborskii* Semenov. Palaearctic: sw USSR (Georgia).

*raciborskii* Semenov 1967:145. Holotype male; Georgian SSR: Kodzori (LENINGRAD).\*

*rudis* Kimsey. Nearctic: sw USA, Mexico.

*rudis* Kimsey 1982b:26. Holotype male; USA: Arizona, Cochise Co., Portal (DAVIS).\*

*rugosa* (Smith). Palaearctic: India.

*rugosa* (Smith) 1852:45. (*Hedychrum*). Type ?; India: Poona (LONDON).\*

*saphirina* Buysson. Nearctic: sw USA, Mexico.

*saphirina* Buysson 1891:28. Holotype female; Mexico (PARIS).\*

*scutellaris* Zimmermann. Afrotropical: Madagascar.

*scutellaris* Zimmermann 1956:142. Lectotype male (desig. Kimsey 1986c); Madagascar: Bekily (PARIS).\*

*semiignita* Marquet. Palaearctic: France.

*semiignita* Marquet 1879:157. Based on but predating Abeille 1881.

*semiignita* Abeille 1881:157. Type ?; France (PARIS ?). Nec Marquet 1879.

*sibirica* Semenov. Palaearctic: Siberia.

*sibirica* Semenov 1967:147. Holotype female; Russian SFSR: Siberia, Irkutsk (LENINGRAD).\*

*smaragdicolor* Semenov. Palaearctic: s USSR.

*smaragdicolor* Semenov 1967:147. Holotype male; Kazakh SSR: Balamarum, Karatau foothills (LENINGRAD).\*

*solskii* (Radoszkowsky). Palaearctic: s USSR, ne India.

*solskii* (Radoszkowsky) 1877:7. (*Hedychrum*). Syntype male, female; Uzbek SSR: Kizil-Kum Desert (MOSCOW).\*

*speciosissima* Buysson. Palaearctic: s USSR.

*speciosissima* Buysson (in André) 1893:174. Syntype male, female; Uzbek SSR: Chodzident, Turkey: Buyuk Agri Dagı (Mt. Ararat) (PARIS).\*

*tenuitarsis* Linsenmaier. Palaearctic: Israel.

*tenuitarsis* Linsenmaier 1969:372. Holotype female; Israel: Beersheba (LUZERN).

*trapeziphora* Linsenmaier. Palaearctic: Morocco.

*trapeziphora* Linsenmaier 1987:136. Holotype female; Morocco: El Jadida (LUZERN).

*ujkelyiana* Mocsáry. Neotropical: Argentina, Colombia, Brazil, Venezuela.

*ujkelyiana* Mocsáry 1914:7. Lectotype female (desig. French 1986) Colombia: Aracataca (BUDAPEST).\*

*unitasculpta* Semenov. Palaearctic: s USSR.

*unitasculpta* Semenov 1967:145. Holotype male; Turkmen SSR: Tedshen (LENINGRAD ?).

*variolosa* Perez. Palaearctic: Middle East.

*variolosa* Perez 1907:501. Holotype female; 'Persian Gulf: Dibba' (Mus. ?).

*ventralis* (Say). Nearctic: widespread, Neotropical: s to El Salvador.

*ventralis* (Say) 1824:330. (*Hedychrum*). Type ?; USA: Pennsylvania (destroyed).

*aspera* (Brullé) 1846:52. (*Hedychrum*). Holotype female; 'N. Amer.' (PARIS).\*

*dohrni* (Dahlbom) 1854:48. Holotype male; USA: Locality restricted to N.Y. (LUND).\*

*compacta* Cresson 1865b:304. Holotype female; USA: Colorado (PHILADELPHIA).\*

*vespera* Semenov. Palaearctic: s USSR.

*vespera* Semenov 1967:145. Holotype male; Kazakh SSR: Muyunkum desert (LENINGRAD).\*

*vigora* Linsenmaier. Palaearctic: Turkey, se Europe, Middle East.

*vigora* Linsenmaier 1959a:31. Holotype male; Turkey: Nigde (LUZERN).

*virescens* Mocsáry. Palaearctic: India.

*virescens* Mocsáry 1914:5. Holotype female; India: Bulanshakur (LONDON).

*viridis* (Guérin). Palaearctic: Algeria.

*viridis* (Guérin) 1842:150. (*Hedychrum amoenula* var.). Holotype male; Algeria: Constantine (GENOA).

*wagneriella* Buysson. Neotropical: Argentina.

*wagneriella* Buysson 1904:255. Holotype female ?; Argentina (PARIS).\*

*zarudniana* Semenov. Palaearctic: Iran.

*zarudniana* Semenov 1967:145. Holotype male; Iran: Mekran, near Kambil (LENINGRAD).\*

## *Microchridium* Bohart (Figs 69 and 70)

*Microchridium* Bohart 1980:132. Type: *Microchridium minutum* Bohart 1980:133. Monobasic and orig. desig.

### Generic diagnosis

Face flat without indication of scapal basin, microreticulate (Fig. 70a); malar space long, about half eye height; body non-metallic, impunctate, and somewhat striatiform; F-I length subequal to breadth; mesopleuron gently rounded, nearly bisected by scrobal sulcus, without omaulus or scrobal carina (Fig. 69); notauli deep sulciform; scutellar wing fossa without anterior lobe; scutellum with longitudinal groove; hind tibia with small subapical pit on inner surface (Fig. 70c); tarsal claw with one subparallel medial tooth (Fig. 70b); fore wing venation restricted to basal third of wing (Fig. 69); cu-a vague, medial vein straight arising at origin of cu-a, stigma short and blunt and as long as Rs; T-III flattened, one quarter as long as II; male genitalia (Fig. 70d), volsella elongate and undivided, without cusps.

### Hosts

J. Halsted (1987) reared *minutum* from cells of a species of *Ammoplanellus* (Sphecidae).

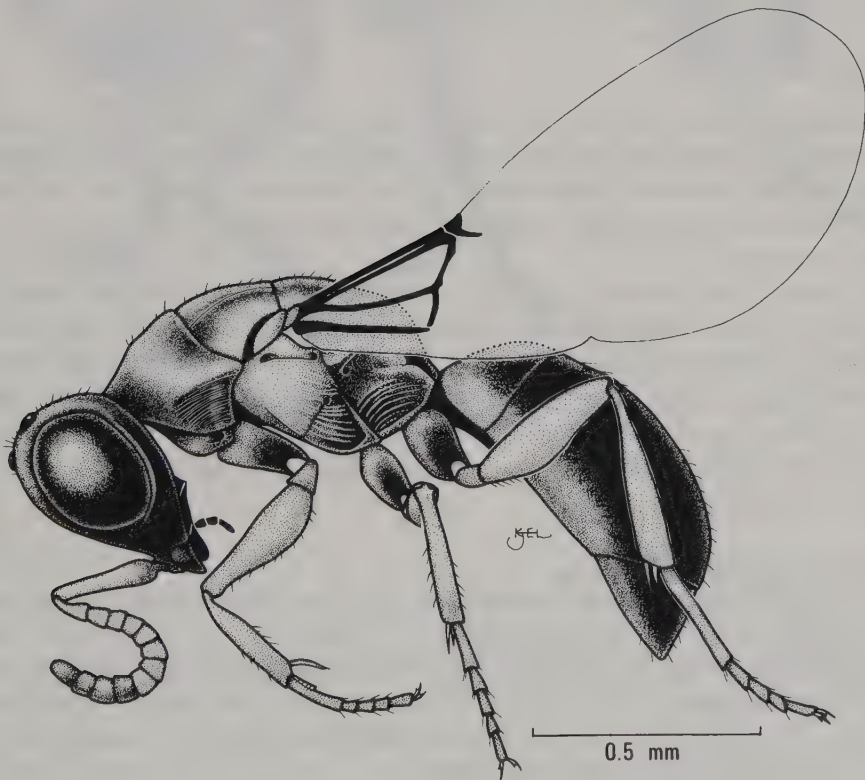


Fig. 69. *Microchridium minutum*, male.

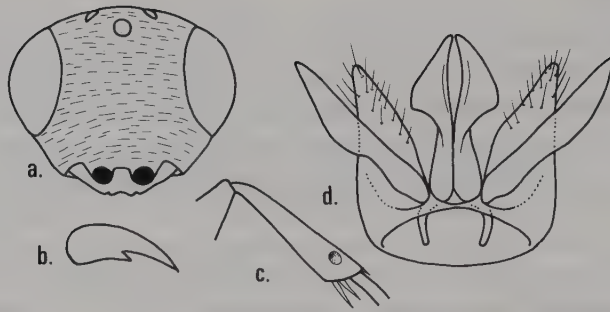


Fig. 70. *Microbridium minutum*, male. (a) face; (b) hind tarsal claw; (c) hind tibia, inner surface; and (d) genital capsule, ventral.

## Distribution

This monotypic genus occurs in western North America.

## Discussion

*Microbridium* is one of the smallest Chrysididae, averaging 1.5 mm in length. Unique features of this genus are the non-metallic and finely reticulate body, absence of a cuspis, and fore shortened wing venation. Other diagnostic features are the lack of a scapal basin, claw with a small subparallel tooth, and hind tibia with a small circular pit on inner surface.

This genus is not commonly collected. However, this is probably due more to the small size and dark coloration than any actual rarity. The non-metallic coloration will immediately identify *minutum* from other Chrysidinae in the Western Hemisphere.

The monotypic nature of this group makes elucidation of generic affinities difficult. However, the tarsal claw dentition, hind tibial pit and propodeal sculpturing suggest a relationship with *Hedychrum*. This genus was discussed by Bohart (1980) and Bohart and Kimsey (1982).

## Checklist of *Microbridium*

---

*minutum* Bohart. Nearctic: w North America.

*minutum* Bohart 1980:132. Holotype male; USA: California, San Bernardino Co., Cronise Wash (DAVIS).\*

---

## *Minymischa* Kimsey (Figs 71 and 72)

*Minymischa* Kimsey 1982a:353. Type: *Minymischa arenicola* Kimsey 1982a:353. Orig. desig.



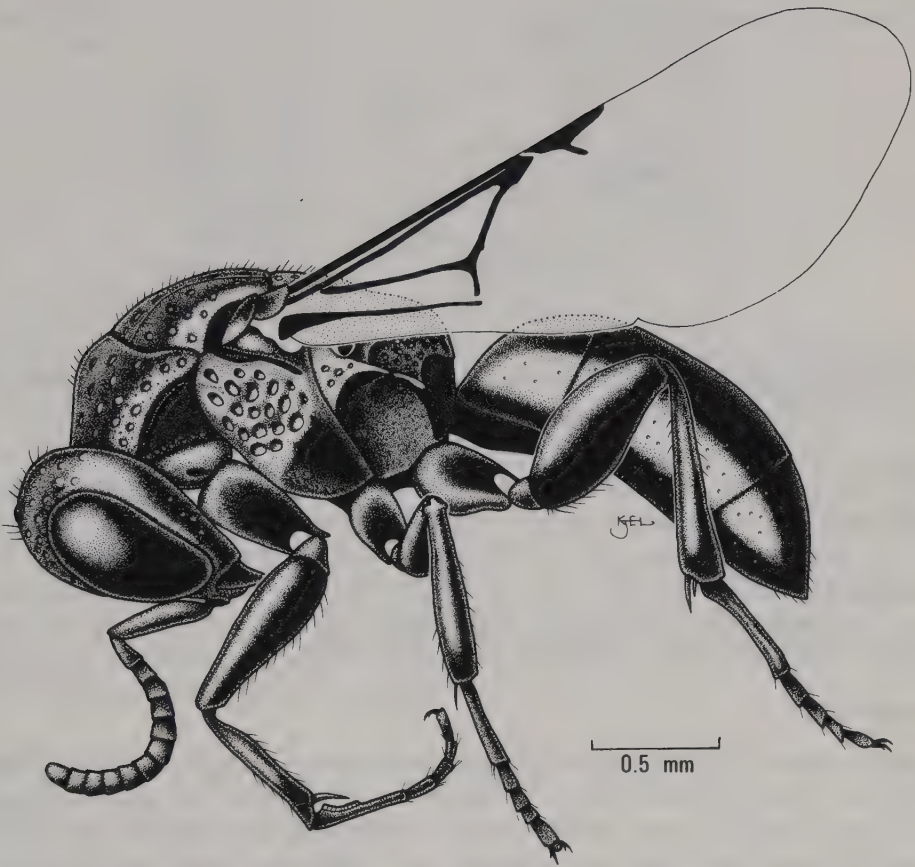


Fig. 71. *Minymischa arenicola*, male.

### Generic diagnosis

Scapal basin shallow or flat, with few cross-ridges (Fig. 72a); malar space less than 1 MOD; pronotum gently rounded without anterior declivity, carinae, or pits; mesopleuron rounded without carinae (Fig. 71); notauli sulciform; scutellar wing fossa without anterior lobe; propodeal posterior surface without carinae or enclosures; female fore and mid tarsi expanded and flattened (Fig. 72b); tarsal claws with submedial, subparallel tooth (Fig. 72c); male hind tarsal claw also apically bifid (Fig. 72d); fore wing medial vein nearly straight, arising beyond cu-a (Fig. 71); Rs one-fifth as long as medial vein, or shorter; volsella undivided and less than five times as long as broad, with stout apical setae (Fig. 72e).

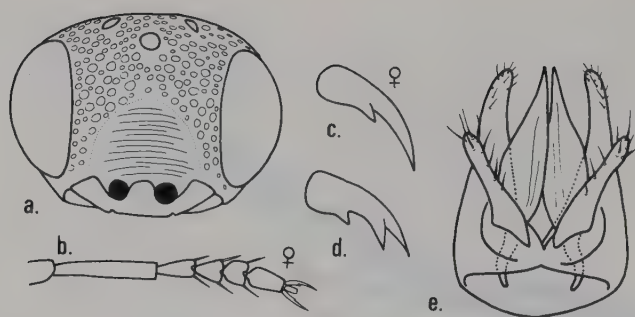


Fig. 72. *Minymischa*. (a) face; (b) mid tarsus; (c), (d) hind tarsal claw; and (e) genital capsule, ventral. Male, except as indicated.

## Hosts

Unknown.

## Distribution

All three species are found in western North America.

## Discussion

*Minymischa* superficially resembles *Pseudolopyga* and several sympatric species of *Omalus* (*telfordi* and *krombeini*). However, it can be distinguished from these and other genera by the very short Rs vein, simple volsella, evenly sculptured propodeum, sexually dimorphic tarsal claw dentition, flattened and prehensile female fore tarsus, and posterior surface of propodeum evenly punctate without carinae or medial enclosure. The three species are separated by the colour of the terga, proportions of F-I, -II, and -X, and wing colour. The fore wing has darkly stained vein remnants in *ventura*. In *deserticola* the tergal colour strongly contrasts with that of the thorax. F-II is as long as broad, or broader, in *arenicola* and *ventura*. This genus was revised by Kimsey (1982a).

## Checklist of *Minymischa*

*arenicola* Kimsey. Nearctic: w USA.

*arenicola* Kimsey 1982a:353. Holotype male; USA: California, San Bernardino Co., Barstow (DAVIS).\*

*deserticola* Kimsey. Nearctic: w USA.

*deserticola* Kimsey 1982a:354. Holotype male; USA: California, San Diego Co., Borrego Springs (DAVIS).\*

*ventura* Kimsey. Nearctic: w USA.

*ventura* Kimsey 1982a:354. Holotype male; USA: California, Ventura Co., Quatal Canyon (DAVIS).\*

---

### *Muesebeckidium* Krombein (Figs 73 and 74)

*Muesebeckidium* Krombein 1969:352. Type: *Hedychrum obsoletum* Say 1836:284. Orig. desig.

### Generic diagnosis

Facial setae sparse, erect; scapal basin deep and cross-ridged (Fig. 74a); malar space less than 1 MOD; pronotum flat and sharply carinate laterally; notauli shallow and sulciform; mesopleuron sharp-edged and produced anterolaterally; omaulus, signum, and scrobal carinae strong and straight (Fig. 73); scutellum sharply declivitous and carinate anteriorly (Fig. 74d); scutellar wing fossa without anterior lobe; fore wing medial vein strongly arched, arising before cu-a, Cu elongate before cu-a, stigma short, broad and apically rounded (Fig. 73); medial cell asetose; female fore and mid tarsi laterally expanded and flattened (Fig. 74e); male hind tarsal claw with one large subparallel tooth and one small one (Fig. 74c); female claw with one subparallel tooth (Fig. 74b); terga strongly convex; T-III apical rim evenly curved; male genitalia (Fig. 74f), volsella undivided, without digitus.

### Hosts

Unknown.

### Distribution

Two species occur in North America and two in South America, one of which is undescribed.

### Discussion

The extreme thoracic modification of *Muesebeckidium* immediately distinguishes this genus from other elampines, including its closest relatives, *Holopyga*, *Elampus*, *Omalus*, *Holophris*, *Pseudomalus*, and *Philoctetes*. Diagnostic features of *Muesebeckidium* are the sharp lateral pronotal carina, anterolaterally produced mesopleuron, prehensile female fore and mid tarsi, carinate anterior scutellar margin, and tarsal claws with small basal tooth. The wing venation, asetose medial cell, presence of a signum carina, and propodeal sculpture clearly places the genus in the *Holopyga* line (Fig. 51).

Species distinctions are based on differences in colour and punctuation. In North America, *obsoletum* has blue to black terga and fine tergal punctuation, *occidentale* has blue to blue-green terga and large coarse tergal punctures. The South American

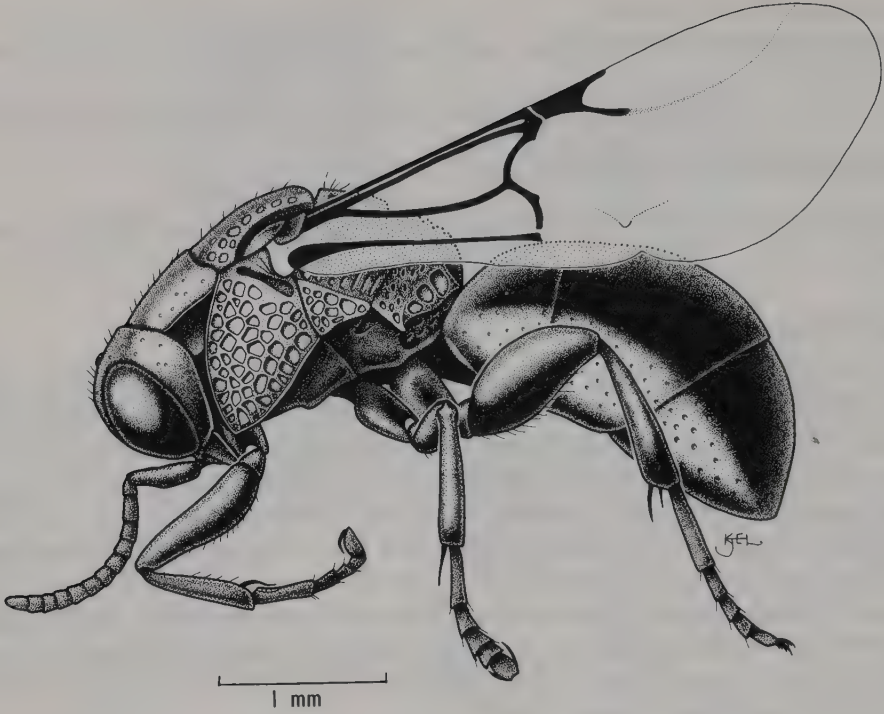


Fig. 73. *Muesebeckidium obsoletum*, female.

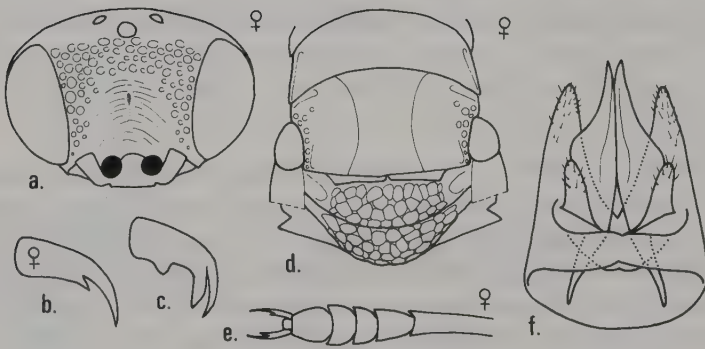


Fig. 74. *Muesebeckidium obsoletum*. (a) face; (b), (c) hind tarsal claw; (d) thoracic dorsum; (e) mid tarsus; and (f) genital capsule, ventral. Male, except as indicated.



*paraense* resembles *obsoletum*, except that the head, pronotum, scutum, and T-I–II are polished and nearly impunctate. Only the North American species have been revised (Bohart and Kimsey 1982, Krombein 1969).

### Checklist of *Muesebeckidium*

---

*obsoletum* (Say). Nearctic: e USA, se Canada.

*obsoletum* (Say) 1836:284. (*Hedychrum*). Holotype female; USA: Indiana (destroyed).

*zimmermanni* (Dahlbom) 1845:2. (*Hedychrum*). Holotype male; USA: New Jersey (LUND).

*occidentale* Krombein. Nearctic: sw USA, Mexico.

*occidentale* Krombein 1969:357. Holotype male; USA: Arizona, Queen Creek (WASHINGTON).\*\*

*paraense* (Ducke). Neotropical: Brazil, French Guiana.

*paraense* (Ducke) 1901:358. (*Ellampus*). Syntype females; Brazil: Pará (Mus. ?).

---

### *Omalus* Panzer (Figs 75 and 76)

*Omalus* Panzer 1801:13. Type: *Chrysis aenea* Fabricius 1787:284. Monobasic.

*Homalus* Saunders 1873:411. Invalid emendation of *Omalus* Panzer 1801.

### Generic diagnosis

Scapal basin usually deep and smooth, asetose (Fig. 76a); malar space less than 1 MOD and bisected horizontally by genal carina; head lenticular, with carinate postocular edge, pronotum impressed laterally; vertex, pronotum medially and scutum often impunctate; mesopleuron with scrobal sulcus horizontal, extending from lateroventral margin of pronotum to scrobe with single carina dorsally, transpleural carina reaching apex of propodeal angle (Fig. 75); scutellum with two flattened areas along anterior margin (Fig. 76f); metanotum evenly rounded; fore wing medial cell asetose, medial vein strongly arched and arising before cu-a, stigma short, broad, and apically rounded (Fig. 75); fore femur ventrally carinate and often subapically broadened, tarsal claws with 2–3 subsidiary teeth; T-I–III strongly convex; T-III apical margin often sinuate laterally, occasionally transparent, usually without apicomедial notch (Fig. 76b, c); genital capsule (Fig. 76g).

### Hosts

*Omalus* are parasites of sphecoid wasps in the subfamily Pemphredoninae (Table 5).

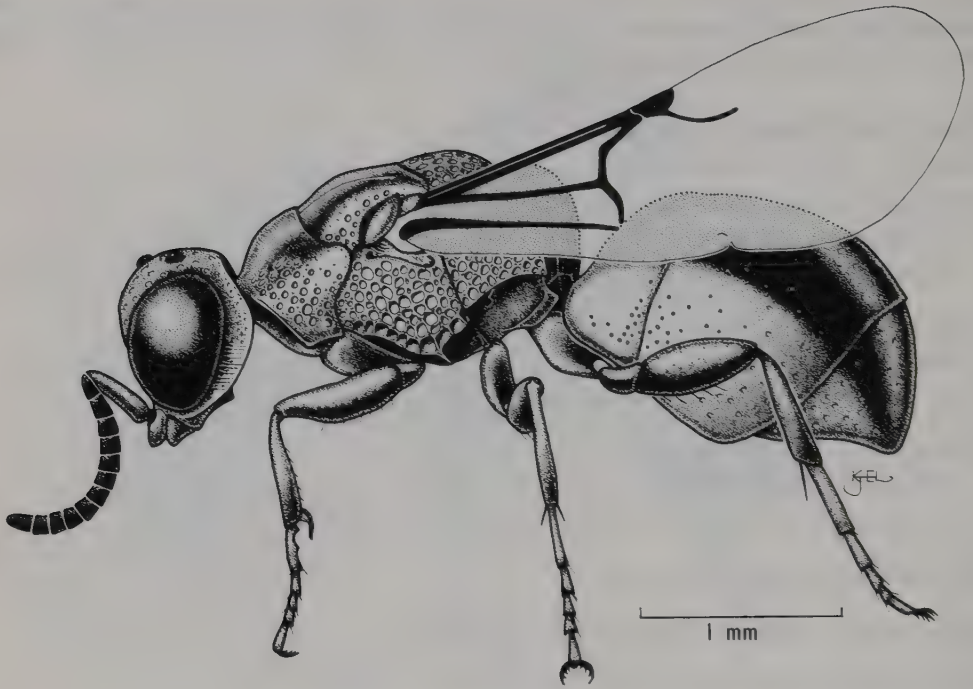


Fig. 75. *Omalus stella*, male.

## Distribution

*Omalus* occur in all but the Australian Region. The vast majority of species are Holarctic.

## Discussion

Historically the genus *Omalus* has been divided into four or as many as eight subgenera. We have examined these subgeneric groupings in detail and have found only four to be valid. These four groups have sufficiently discrete diagnostic features that we give them generic status. The resulting genera are *Omalus* s.s., *Holophris*, *Pseudomalus*, and *Philoctetes*.

*Omalus* s.s. is a group of 20 species, characterized by the genal carina bisecting the malar space, pronotum and vertex mostly impunctate except laterally, scutum impunctate or with scattered punctures, scrobal sulcus nearly horizontal, extending from the lateral pronotal margin to scrobe, and the anterior margin of the scutellum with two smooth, flattened areas. In addition, the apical margin of T-III is sinuous, usually without a medial notch, and usually only narrowly transparent. In addition, the

metanotum is evenly rounded. T-III has a deep apical notch in *biaccinctus*, and *congoensis* has T- III with a broad transparent rim, a small lateral angle, and deep medial notch.

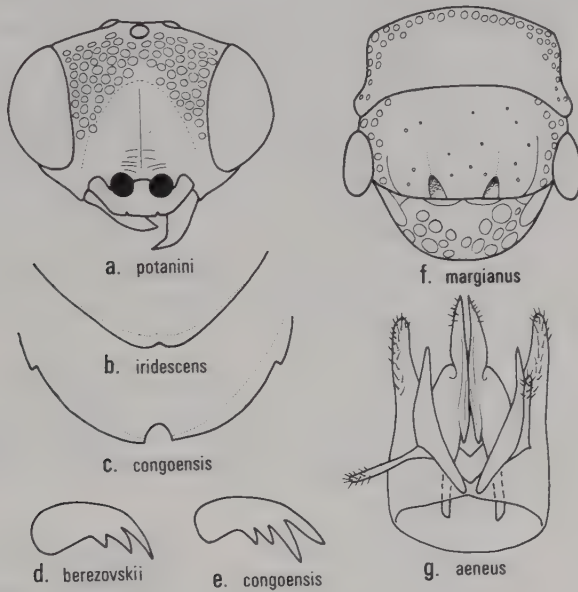


Fig. 76. *Omalus*, male. (a) face; (b), ♂ T-III, apical rim; (d), (e) hind tarsal claw; (f) thoracic dorsum; and (g) genital capsule, ventral.

We have found no reliable way of determining the sex of individuals in *Omalus*, without exserting the genitalia.

This genus has been revised only in a few restricted geographic areas: the Afrotropical Region (Kimsey 1988a), Europe (Linsenmaier 1951, 1959a, b), and the Nearctic Region (Bohart and Campos 1960, Bohart and Kimsey 1982). However, all of these studies treated *Omalus* in the broad sense, with *Pseudomalus*, *Diplorrhous*, and *Holophris* as subgenera.

### Checklist of *Omalus*

*aeneus* (Fabricius). Holarctic: widespread.

*aeneus* (Fabricius) 1787:284. (*Chrysis*). Holotype female; Germany: 'Halae Saxonum' (COPENHAGEN).\*

*bidentulus* (Lepeletier) 1806:121. (*Hedychrum*). Holotype male; France: Paris (PARIS ?).

*nitidulus* (Panzer) 1806:104. (*Hedychrum*). Holotype male; Germany (BERLIN ?).

*affinis* (Wesmael) 1839:172. (*Elampus*). Holotype; Belgium (BRUSSELS).

*blandus* (Förster) 1853:351. (*Elampus aeneus* var.). Holotype male; France (BERLIN).

Table 5. Sphecid hosts of *Omalus* species

Chrysidid species	Host species	Reference
<i>aeneus</i>	<i>Psenulus atratus</i> Fabricius	Yarrow (1948)
	as <i>pallipes</i> (Panzer)	
	<i>Pemphredon</i> sp.	Parker and Bohart (1966)
	<i>Passaloecus eremita</i> Kohl	Lomholdt (1973)
	<i>P. cuspidatus</i> F. Sm.	Krombein (1967)
	<i>P. tenuis</i> A. Mor.	Grandi (1961)
	<i>P. turionum</i> Dahlbom	
	<i>P. chevrieri</i> Tournier	
	<i>Cemonus rugifer</i> Dahl.	Mocsáry (1889)
	(as <i>unicolor</i> Jur.)	
<i>aeneus</i> (as <i>bidentulus</i> )	<i>Passaloecus cuspidatus</i> (F. Sm.)	Krombein (1979)
	<i>Pemphredon</i> sp.	
<i>iridescens</i>	<i>Psen caliginosus</i> Westw.	Mocsáry (1889)
	<i>Pemphredon</i> sp.	Parker and Bohart (1979)
	<i>Stigmus inordinatus</i> W. Fox	Krombein (1979)
	<i>S. americanus</i> Pack.	
	<i>Psenulus trisulcus</i> (W. Fox)	
<i>andinus</i>	<i>Passaloecus</i> sp.	
	<i>Stigmus rumipambensis</i> Benoist	Benoist (1942)
<i>nanus</i>	<i>Solierella pisonoides</i> Saund.	Mocsáry (1889)
<i>glomeratus</i>	<i>Cemonus grinnelli</i> Roh.	Bohart and Kimsey (1982)

*pygmaeus* (Schenck) 1856:58. (*Elampus*). Holotype; Germany: Dillenburg (FRANKFURT).

*bidentatus* (Eversmann) 1857:548. (*Ellampus*). Type ?; Russian SFSR: Volgo-Ural area (KRAKOW ?).

*wesmaeli* Chevrier 1862:110. (*bidentulus* var.). Type ?; Switzerland (Mus. ?).

*laeviventris* Cresson 1865b:303. Lectotype female (desig. Cresson 1916); USA: 'Colorado Territory' (PHILADELPHIA).\*

*chevrieri* (Tournier) 1877:105. (*Elampus*). Syntypes; Switzerland: Lemman area (GENEVA ?).

*appendicinus* Abeille 1878:2. (*bidentulus* var.). Holotype female; Ukrainian SSR (PARIS).\*

*nitidus* (Marquet) 1879:156. (*Homalus aeneus* ssp.). Type ?; France (Mus. ?).

*minutus* Marquet 1879:156. Type ?; France: Toulouse (Mus. ?).

*cyanescens* (Provancher) 1881:303. (*Elampus*). Lectotype female (desig. Bohart and Kimsey 1982); Canada (QUEBEC).\*



- diversus* Aaron 1885:213. Holotype female; USA: California (PHILADELPHIA).\*
- pygialis* Buysson 1887b:170. (*aeneus* var.). Syntype male, female; 'Chinese caucasus' (PARIS).
- puncticollis* (Mocsáry) 1887b:291. (*Ellampus*). Lectotype female (desig. Móczár 1964b); Germany: Hanover (BUDAPEST).\*
- atratus* (Mocsáry) 1887c:291. (*Ellampus puncticollis* var.). Lectotype male (desig. Móczár 1964b); Germany: Hanover (BUDAPEST).\*
- freyi* (Tournier) 1889:169. (*Ellampus*). Holotype; Switzerland: Peney (Mus. ?).
- japonicus* (Bischoff) 1910:438. (*Philoctetes*). Holotype female; Japan (BERLIN).
- sauteri* (Mocsáry) 1913b:613. (*Ellampus*). Holotype female; Taiwan: Taihorinsho (BUDAPEST).\*
- styx* (Trautmann) 1926a:4. (*Ellampus bidentulus* var.). Type ?; Austria: Bromberg (BERLIN).
- uniformis* (Trautmann) 1926a:4. (*Ellampus bidentulus* var.). Type ?; Austria: 'Nordtirol' (BERLIN).
- andinus* (Cameron). Neotropical: Ecuador, Colombia.
- andinus* (Cameron) 1903:160. (*Ellampus*). Holotype male; Ecuador: Machachi (LONDON).\*
- interandinus* (Benoist) 1942:85. (*Ellampus*). Holotype female; Ecuador: Rumipamba (Mus.?).
- berezovskii* (Semenov). Palaearctic: China.
- berezovskii* (Semenov) 1932:12. (*Ellampus*). Holotype female; China: Setshuan Prov., Chodzigu, Lunngan-fu (LENINGRAD ?).
- biaccinctus* (Buysson). Palaearctic: Europe, sw USSR.
- biaccinctus* (Buysson) (In André) 1893:152. (*Ellampus*). Syntype male, female; France (PARIS).\*
- muelleri* (Trautmann) 1926a:4. (*Ellampus biaccinctus* var.). Type ?; Germany: Brandenburg (BERLIN).
- butleri* Bohart and Campos. Nearctic: w USA.
- butleri* Bohart and Campos 1960:240. Holotype female; USA: Arizona, Graham Mts. (SAN FRANCISCO).\*
- chlorosomus* Lucas. Palaearctic: Algeria.
- chlorosomus* Lucas 1849:311. Holotype male; Algeria: Hippone (PARIS).\*
- mallorcanus* Linsenmaier 1959a:19. (*chlorosomus* ssp.). Holotype female; Spain: Balearic Isl. (LUZERN).
- congoensis* (Buysson). Afrotropical: Zaire
- congoensis* (Buysson) 1900:127. (*Holophris*). Holotype male; Congo: Bata (PARIS).\*
- bayoni* (Mantero) 1910:451. (*Ellampus*). Holotype; Uganda: Bussu Busoga (GENOA).
- inaequalis* (Edney) 1962:857. (*Philoctetes*). Holotype female; Zaire: Abercorn (CAPETOWN). N. synonymy.\*
- dzbigit* (Semenov and Nikol'skaya). Palaearctic: s USSR.

- dzbigit* (Semenov and Nikol'skaya) 1954:92. (*Ellampus*). Holotype female; Tadzhik SSR: Kondara (LENINGRAD ?).
- glomeratus* (Buysson). Nearctic: w USA, sw Canada.  
*glomeratus* (Buysson) 1901:98. (*Elampus*). Holotype male; USA: 'Washington Territory' (VIENNA).\*
- hohlbecki* (Semenov). Palaearctic: s USSR.  
*hohlbecki* (Semenov) 1932:21. (*Ellampus*). Syntype male, females; Kazakh SSR (Semiretshj'e): Taldy-bulak, Alexandri (LENINGRAD ?).
- hypocritus* (Buysson). Palaearctic: Iran, s USSR.  
*hypocritus* (Buysson) 1893:246. (*Ellampus*). Holotype female; 'Persia' ('Caspian sea' on label?) (PARIS).\*
- iridescens* (Norton). Nearctic: s Canada, USA (widespread).  
*iridescens* (Norton) 1879:234. (*Elampus*). Lectotype male (desig. Cresson 1928); USA: Penn. (PHILADELPHIA).\*
- marginatus* (Provancher) 1881:304. (*Elampus*). Lectotype female (desig. Bohart and Kimsey 1982); Canada (QUEBEC). Nec Patton 1879.\*
- jaxartis* (Semenov). Palaearctic: s USSR.  
*jaxartis* (Semenov) 1932:14. (*Ellampus*). Holotype male; Kazakh SSR: Syr-Darya (LENINGRAD ?).
- kalliopsis* (Zimmermann). Afrotropical: Madagascar.  
*kalliopsis* (Zimmermann) 1961b:300. (*Holophris*). Holotype female; Madagascar: Ivondro (PARIS).\*
- kozbeznikovi* (Semenov). Palaearctic: s USSR.  
*kozbeznikovi* (Semenov) 1932:20. (*Ellampus*). Holotype male; Uzbek SSR: Shachimardan (LENINGRAD ?).
- laevigatus* (Mocsáry). Palaearctic: s USSR.  
*laevigatus* (Mocsáry) 1911b:444. (*Ellampus*). Holotype male; Turkmen SSR: Ashkhabad (BUDAPEST).\*
- magrettii* (Buysson). Palaearctic: Syria.  
*magrettii* (Buysson) 1890b:532. (*Elampus*). Holotype female; Syria: Damascus (GENOA ?).
- margianus* (Semenov). Palaearctic: s USSR.  
*margianus* (Semenov) 1931:15. (*Ellampus*). Lectotype female (desig. Kimsey 1986c); Turkmen SSR: Imam-baba Dist., Mary (Merv) (LENINGRAD).\*
- integellus* (Semenov) 1932:17. (*Ellampus*). Holotype male; Uzbek SSR: Amu-darya, Termez (LENINGRAD). N. synonymy.\*
- specularis* (Semenov) 1932:18. (*Ellampus*). Syntype males, female; Turkmen SSR (LENINGRAD). N. synonymy.\*

- kiritschenkoi* (Semenov) 1932:22. (*Ellampus*). Holotype female; Uzbek SSR: Amu-Darya (LENINGRAD). N. synonymy.\*
- bactrianus* (Semenov) 1932:22. (*Ellampus*). Holotype female; Uzbek SSR: Amu-Darya (LENINGRAD). N. synonymy.\*
- miramae* (Semenov). Palaearctic: s USSR.
- miramae* (Semenov) 1932:13. (*Ellampus*). Syntype females; Turkmen SSR (LENINGRAD ?).
- nanus* (Saunders). Palaearctic: Greece.
- nanus* (Saunders) 1873:411. (*Homalus*). Holotype; Greece: Ionian Isl. (OXFORD).\*
- politus* (Buysson). Palaearctic: s Europe, Middle East, Turkey.
- politus* (Buysson) 1887b:168. (*Ellampus*). Lectotype female (desig. Kimsey herein); Lebanon: Beirut (PARIS).\*
- popovi* (Semenov). Palaearctic: s USSR.
- popovi* (Semenov) 1932:16. (*Ellampus*). Holotype male; Uzbek SSR: Samarkand (LENINGRAD?).
- potanini* (Semenov). Palaearctic: China.
- potanini* (Semenov) 1932:11. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); China: Setshuan Prov., Sjaotzhin-cho (LENINGRAD).\*
- sogdianus* (Semenov). Palaearctic: s USSR.
- sogdianus* (Semenov) 1932:19. (*Ellampus*). Holotype male; Tadzhik SSR: Zeravsan (LENINGRAD ?).
- stella* (Semenov and Nikol'skaya). Palaearctic: s USSR.
- stella* (Semenov and Nikol'skaya) 1954:93. (*Ellampus*). Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Stalinabad (LENINGRAD).\*
- zarudnyi* (Semenov). Palaearctic: s USSR.
- zarudnyi* (Semenov) 1932:44. (*Ellampus*). Holotype female; Uzbek SSR: Tashkent (LENINGRAD ?).

### *Parachrum* Kimsey (Figs 77 and 78)

*Parachrum* Kimsey 1988a:6. Type: *Hedychrum apiculatum* Edney 1940:103. Orig. desig. and monobasic.

### Generic diagnosis

Scapal basin with coarse irregular punctures between rugae or ridges, without appressed silvery pubescence and with deep dorsomedial pit (Fig. 78a); F-I more than twice as long as broad; female mandibles robust and multidentate; genal bridge projecting ridge-like along mid-line; tongue short, protruding slightly from oral fossa;

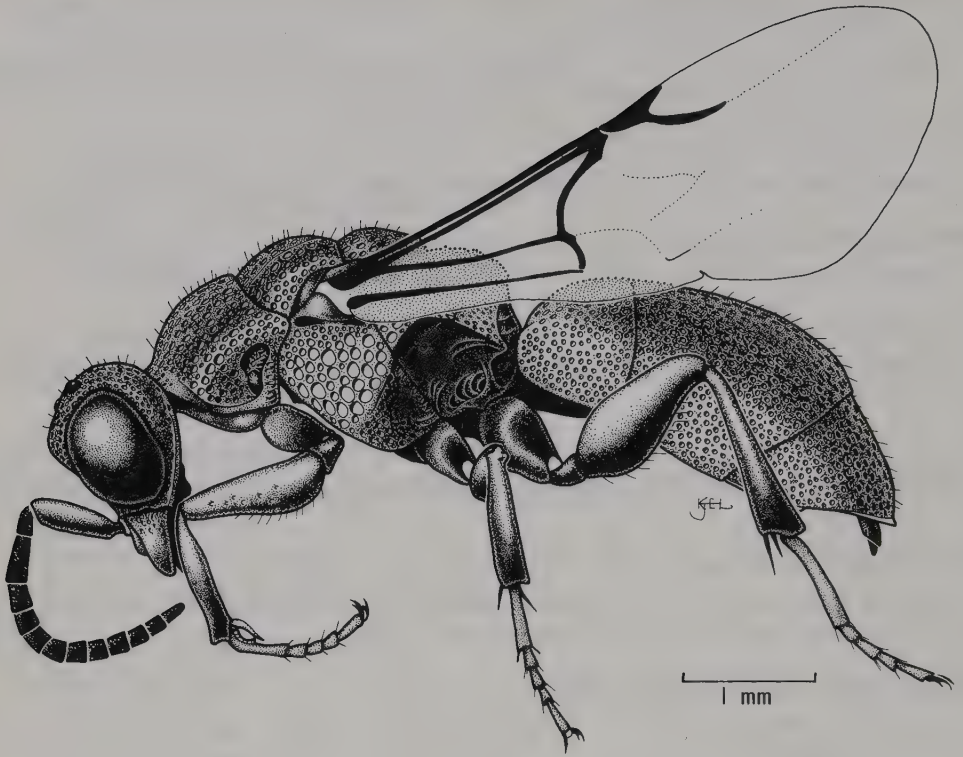


Fig. 77. *Paracbrum apiculatum*, female.

pronotal anterior declivity shallow with short linear pit anteromedially; mesopleuron somewhat angulate, with irregular omaulus, scrobal carina, and faint verticulus (Fig. 77); fore femur basoventrally rounded with ventral carina; mid and hind tibia without pits or depressions on inner surface; hind femur not enlarged; tarsal claws appearing bifid, with large subparallel subsidiary tooth (Fig. 78b); propodeum with very short medial carina extending dorsally from petiolar socket, fading into broad triangular enclosure, lateral angle acute and triangular; fore wing medial vein broadly curved, meeting M + Cu at an obtuse angle, stigma short and apically pointed (Fig. 77); female S-III unmodified, and S-IV broadly exposed, about half as long as S-III.

Male unknown.

### Hosts

Unknown.



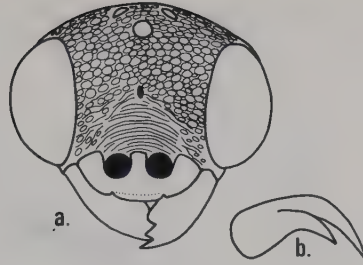


Fig. 78. *Parachrum apiculatum*, female. (a) face; and (b) hind tarsal claw.

## Distribution

*Parachrum apiculatum* is known from Zimbabwe.

## Discussion

*Parachrum* is most closely related to *Hedychridium*. A number of primitive characteristics are shared: triangular medial enclosure, unmodified wing venation, simple female sternum, and unmodified legs. The tarsal claws are different from those in other elampines. Although the subsidiary tooth is subparallel, as it is in *Hedychrum*, *Hedychreides*, and some *Exallopyga*, it is so large that the claw actually appears apically bifid. The coarse sculpturing of the scapal basin is another distinctive feature of *Parachrum*. The only remotely similar condition occurs in a few species of *Hedychridium*.

## Checklist of *Parachrum*

---

*apiculatum* (Edney). Afrotropical: Zimbabwe.

*apiculatum* (Edney) 1940:103. (*Hedychrum*). Holotype female; Zimbabwe: Sawmills (CAPE TOWN).\*

---

## *Philoctetes* Abeille (Figs 79 and 80)

*Philoctetes* Abeille 1879:27. Type: *Holopyga cicatrix* Abeille 1879 (= *Diplorrhbos micatus* Kimsey). Desig. by Ashmead 1902:228.

*Diplorrhbos* Aaron 1885:216. Type: *Diplorrhbos plicatus* Aaron 1885:216. Monobasic. N. synonymy.

*Chrysellampus* Semenov 1932:5. Type: *Chrysellampus heros* Semenov 1892c:71. Orig. desig. and monobasic. N. synonymy.

*Dictenulus* Semenov 1932:6. Type: *Ellampus specularis* Semenov 1932:18. Orig. desig. N. synonymy.

*Parellampus* Semenov 1932:7. Type: *Parellampus praeteritorium* Semenov 1932:7.

Monobasic. N. synonymy.

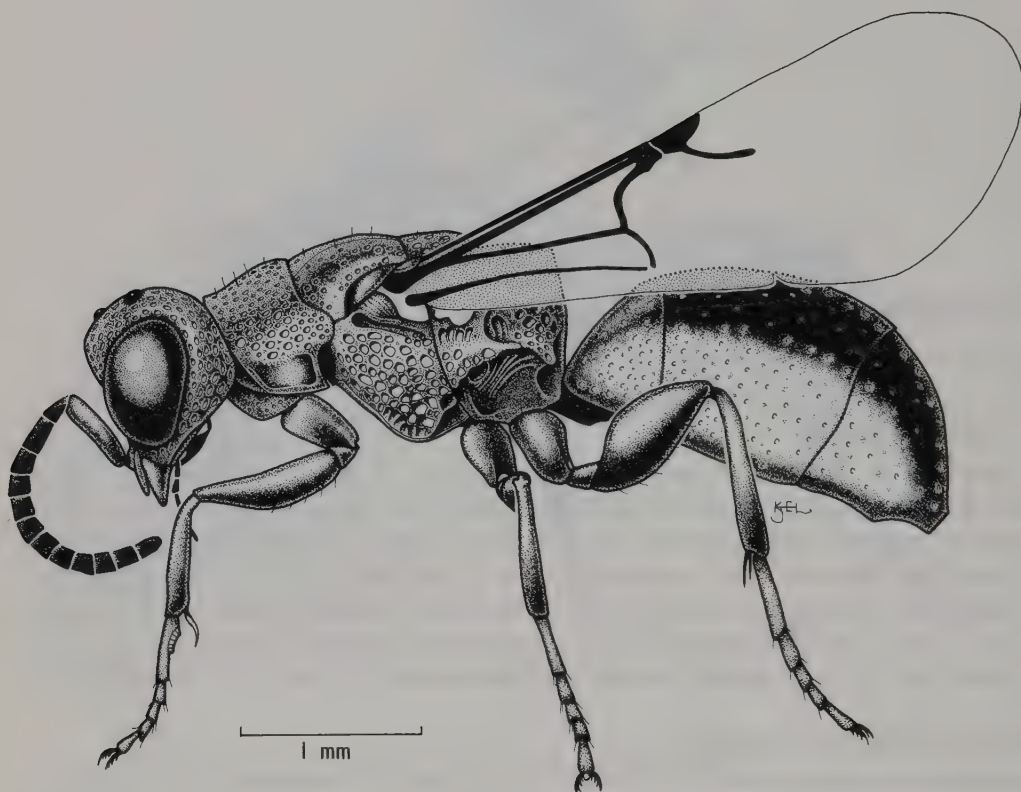


Fig. 79. *Philoctetes kuznetzovi*, male.

### Generic diagnosis

Scapal basin generally smooth and asetose; malar space 1 MOD or shorter (Fig. 80a); genal carina generally faint, extending from mandibular socket; vertex generally densely punctate; pronotum deeply concave laterally, punctate medially; scutum with punctures clumped along notauli (Fig. 80e), or less commonly more evenly distributed (Fig. 80f); mesopleuron carinate or rounded, juncture of omaulus, verticaulus, and scrobal carina not strongly projecting, signum carina usually present, scrobal sulcus oblique (Fig. 79); metanotum usually conical, even mucronate in several species (Fig. 80g); fore wing medial cell asetose, medial vein strongly arched and arising before cu-a, stigma short, broad and apically rounded (Fig. 79); fore femur carinate ventrally; tarsal claws with 1-3 subsidiary teeth (Fig. 80b, i); T- I-III strongly convex; T-III

lateral margin straight or sinuate, usually deeply notched apicomediaally, or bent under, without transparent rim (Fig. 80*b-d, k, l*).

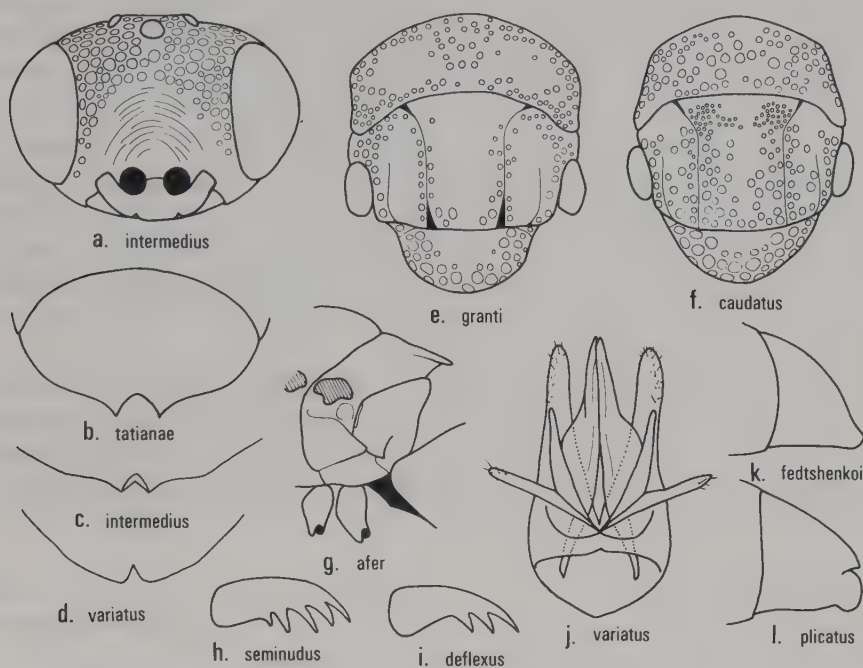


Fig. 80. *Philoctetes*, males. (a) face; (b)–(d) T-III apical rim; (e), (f) thoracic dorsum; (g) metathorax and propodeum, lateral; (h), (i) hind tarsal claw; (j) genital capsule; and (k), (l) T- III, lateral.

## Hosts

*Philoctetes variatus* has been reared from various twig-nesting Pemphredoninae (Sphecidae), including *Diodontus occidentalis* W. Fox, *Pemphredon grinnelli* (Roh.), *Stigmus inordinatus* W. Fox, and *Passaloecus cuspidatus* F. Smith (Powell 1963, Parker and Bohart 1966, Evans 1973*b*). *Philoctetes intermedius* has been reared from *Diodontus virginianus* (Roh.) (Krombein 1963*b*).

## Distribution

The majority of species are Holarctic, with 8 in the Nearctic Region and 34 in the Palearctic. One unusual species, *afer*, is Afrotropical. The highest diversity is in southern USSR and western China.

## Discussion

As a whole, *Philoctetes* is the least specialized of the three genera related to *Omalus*,

although it does include some highly derived species. The mesopleuron usually has an omaulus, scrobal carina, and verticaulus. However, one or more of these carinae may be weakly developed or even absent. In addition, the tarsal claws only have one to three subsidiary teeth, with most species having two. Diagnostic features are: omaulus and scrobal carina forming a broadly V-shaped angle, scutal punctures clumped along notauli, and metanotum usually sharply angled, or even mucronate. A mucronate metanotum occurs in *cupratus*, *afer*, and *seminudus* (Fig. 80g). Several species, including *intermedius*, have an *Elampus*-like snout on the apex of T-III (Fig. 80c). Most species have T-III notched apicomediaally. This notch may be simple or snout-like, as in *intermedius*, or have a dorsal nose-like projection as in *plicatus* and *downeyi* (Fig. 80l). Other species, including *hirsutus* and *nikolskyi*, have extensive long, erect, black setae. One group, including *caudatus*, *deflexus*, *fedtschenkoi*, *limpidipennis*, and *omaloides*, has the metanotum sharply conical and the apex of T-III is bent under giving it a nose-like appearance, without a medial notch (Fig. 80k).

We have used somewhat different characters to define *Philoctetes* than previous authors, and as a result the *Philoctetes* of Linsenmaier (1959a, b) is not comparable. There are no major revisions of this group, and the only reliable regional treatments are those of Bohart and Campos (1960) and Bohart and Kimsey (1982), where it is given as *Diplorrhbos*.

### Checklist of *Philoctetes*

---

*afer* (Mocsáry). Afrotropical: South Africa, Kenya.

*afer* (Mocsáry) 1889:75. (*Ellampus*). Holotype female; Kenya: Mombassa (BERLIN).\*

*emarginatus* (Edney) 1940:36. (*Notozus*). Syntype females; South Africa: Natal Prov., Widenham (DURBAN).\*

*caudatus* (Abeille). Palaearctic: s France, Canary Isls., North Africa.

*caudatus* (Abeille) 1878:2. (*Holopyga*). Lectotype female (desig. Kimsey herein); France: Bône (PARIS).\*

*cicatrix* (Abeille). Palaearctic: s France, Spain, Portugal.

*micans* (Klug) 1835:90. (*Elampus*). Type ?; Spain: Andalusia (BERLIN). Nec Olivier 1790.

*cicatrix* (Abeille) 1878:2. (*Holopyga*). Holotype male; France (PARIS ?).

*conifer* (Semenov). Palaearctic: sw USSR.

*conifer* (Semenov) 1932:24. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Russian SFSR: Shipovo (LENINGRAD).\*

*deflexus* Abeille. Palaearctic: Greece, Middle East, Egypt.

*deflexus* Abeille 1878:2. Lectotype female (desig. Kimsey 1986c); Egypt (PARIS).\*

*difficilis* (Tournier) 1889:161. (*Elampus*). Type ?; Switzerland: Geneva (GENEVA).

*penelopeia* Trautmann 1926a:4. (*deflexus* var.). Type ?; Algeria: Biskra (BERLIN).



*diakonovi* (Semenov). Palaearctic: s USSR.

*diakonovi* (Semenov) 1932:34. (*Ellampus*). Holotype female; Kazakh SSR: Baigakum Prov., Syr-daria (LENINGRAD ?).

*downeyi* (Bohart and Campos). Nearctic: sw USA.

*downeyi* (Bohart and Campos) 1960:246. (*Omalus*). Holotype male; USA: California, El Dorado Co., Camp Richardson (SAN FRANCISCO).\*

*duplipunctatus* (Tsuneki). Palaearctic: China.

*duplipunctatus* (Tsuneki) 1948:120. (*Chrysellampus*). Type ?; China (KYUSHU).

*suzukii* (Tsuneki) 1948:122. (*Chrysellampus duplipunctatus* f.). Holotype female; China (KYUSHU). Invalid name.

*variegatus* (Tsuneki) 1950:63 (*Chrysellampus duplipunctatus* f.). Syntype males, females; Korea, Manchuria (TSUKUBA). Invalid name.

*dusmeti* Trautmann. Palaearctic: Spain.

*dusmeti* Trautmann 1926a:4. Type ?; Spain: Castilia (BERLIN).

*elongatus* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*elongatus* (Semenov and Nikol'skaya) 1954:46. (*Ellampus*). Holotype male; Tadzhik SSR: Kok Kul (LENINGRAD).\*

*fedtschenkoi* (Semenov). Palaearctic: s USSR.

*fedtschenkoi* (Semenov) 1932:9. (*Ellampus*). Syntype males; Uzbek SSR: Maracandam (Samarkand), Kazakh SSR: Kyzyl-Kum desert, Katty kurgan (LENINGRAD ?).

*turcmenus* (Semenov) 1932:9. (*Ellampus fedtschenkoi* var.). Holotype female; Turkmen SSR: Imam-baba Dist., Mary (Merv) (LENINGRAD).\*

*granti* (Bohart and Campos). Nearctic: sw USA.

*granti* (Bohart and Campos) 1960:247. (*Omalus*). Holotype male; USA: California, Riverside Co., San Jacinto Mts., Idyllwild (SAN FRANCISCO).\*

*harmandi* (Buysson). Palaearctic: Japan.

*harmandi* (Buysson) 1903b:126. (*Ellampus*). Holotype female; Japan: Tokyo, Nikko mts (PARIS).\*

*viridmaculatus* (Tsuneki) 1950:64. (*Chrysellampus harmandi* f.). Syntype females; Japan (TSUKUBA). Invalid name.

*beros* (Semenov). Palaearctic: n China.

*beros* (Semenov) 1892c:71. (*Elampus*). Holotype female; China: Alaschan Prov., Alaschan mts (LENINGRAD).

*shestakovi* (Semenov) 1967:119. (*Chrysellampus*). Holotype male; Turkmen SSR: Firyuza (LENINGRAD). N. synonymy.

*hirsutus* (Semenov). Palaearctic: s USSR.

*hirsutus* (Semenov) 1932:29. (*Ellampus*). Lectotype male (desig. Kimsey 1986c). Uzbek SSR:

## Fergana (LENINGRAD).\*

*horvathi* (Mocsáry). Palaearctic: s Europe, Iran, Marocco, China, Korea.

*horvathi* (Mocsáry) 1889:82. (*Ellampus*). Lectotype female (desig. Móczár 1964b); Hungary (BUDAPEST).\*

*wesmaeli* (Mocsáry) 1882:27. (*Ellampus*). Syntype male, female; Austria (BUDAPEST). Nec Chevrier 1862.\*

*splendens* (Buysson) 1900:126. (*Ellampus horvathi* var.). Type ?; Israel: Jerusalem (PARIS ?).

*mongolicus* (Buysson) 1901:98. (*Ellampus horvathi* var.). Syntype male, female; n Mongolia (PARIS ?).

*occidentalis* (Linsenmaier) 1968:11. (*Omalus horvathi* ssp.). Holotype female; Morocco (LUZERN).

*intermedius* (Aaron). Nearctic: USA (Maryland, Montana).

*intermedius* (Aaron) 1885:218. (*Notozus*). Holotype male; USA: Montana (PHILADELPHIA).\*

*krombeini* (Bohart and Campos). Nearctic: sw North America.

*krombeini* (Bohart and Campos) 1960:247. (*Omalus*). Holotype male; USA: Arizona, Tucson (SAN FRANCISCO).\*

*kuznetzovi* (Semenov). Palaearctic: sw USSR.

*kuznetzovi* (Semenov) 1932:25. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Georgian SSR: Kodzhory Prov., Tbilisi (LENINGRAD).\*

*limpidipennis* (Semenov). Palaearctic: s USSR.

*limpidipennis* (Semenov) 1932:10. (*Ellampus*). Holotype male; Kazakh SSR: Syr-Daria, Baigakum (LENINGRAD ?).

*medanae* (Buysson). Palaearctic: Syria.

*medanae* (Buysson) 1890b:531. (*Elampus*). Holotype female; Syria: Liban (PARIS ?).

*monticola* (Tsuneki). Palaearctic: Japan.

*monticola* (Tsuneki) 1975:31. (*Omalus*). Holotype female; Japan: Yamagata Pref., Mt. Haguro (TSUKUBA ?).

*nikolskii* (Semenov). Palaearctic: s USSR.

*nikolskii* (Semenov) 1930:32. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Tadzhik SSR: Kalai-vamar (LENINGRAD).\*

*omaloides* Buysson. Palaearctic: North Africa, Greece, Yugoslavia.

*omaloides* Buysson 1888:1. Holotype (sex undeterminable); Algeria Mascara (PARIS).\*

*pici* (Buysson). Palaearctic: Turkey.

*pici* (Buysson) 1900:126. (*Ellampus*). Holotype male; Turkey: Smyrna (PARIS ?).

*plicatus* (Aaron). Nearctic: w North America.

*plicatus* (Aaron) 1885:216. (*Diplorrhós*). Lectotype female (desig. Cresson 1928); USA:

Montana (PHILADELPHIA).\*

*praeteritorum* (Semenov). Palaearctic: n China.

*praeteritorum* (Semenov) 1932:7. (*Ellampus*). Holotype female; China: Szechuan, Tadsinlu (LENINGRAD).\*

*pylnovi* (Semenov). Palaearctic: s USSR.

*pylnovi* (Semenov) 1932:35. (*Ellampus*). Holotype male; Uzbek SSR: Termez, Amu-darya (LENINGRAD).\*

*sareptanus* (Mocsáry). Palaearctic: s USSR, Iran.

*sareptanus* (Mocsáry) 1889:83. (*Ellampus*). Holotype female; Russian SFSR: Sarepta (VIENNA).  
*schultzei* (Mocsáry) 1890:50. (*Ellampus*). Holotype female; Russian SFSR: Sarepta (ZURICH).

*subauratus* (Mocsáry) 1890:51. (*Ellampus schultzei* var.). Type ?; Russian SFSR: Raddefka (Amurensi Siberiae) (ZURICH).

*inflammatus* (Mocsáry) 1890:50. (*Ellampus sareptanus* var.). Type ?; 'Persia' (ZURICH).

*scrutator* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*scrutator* (Semenov and Nikol'skaya) 1954:94. (*Ellampus*). Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Kondara (LENINGRAD).\*

*sculpticollis* (Abeille). Palaearctic: s Europe, s USSR.

*sculpticollis* (Abeille) 1878:2. (*Omalus*). Lectotype male (desig. Kimsey 1986c); France: Marseille (PARIS).\*

*seminudus* (Aaron). Nearctic: w North America.

*seminudus* (Aaron) 1885:218. (*Notozus*). Lectotype male (desig. Cresson 1928); USA: Washington (PHILADELPHIA).\*

*shokalskii* (Semenov). Palaearctic: Mongolia.

*shokalskii* (Semenov) 1932:24. (*Ellampus*). Lectotype male (Desig. Kimsey 1986c); Mongolia: Urga (LENINGRAD).\*

*smaragdulus* (Semenov). Palaearctic: s USSR.

*smaragdulus* (Semenov) 1932:37. (*Ellampus*). Lectotype female (desig. Kimsey 1986c); Uzbek SSR: Samarkand (LENINGRAD ?).

*speculifer* (Semenov). Palaearctic: s USSR.

*speculifer* (Semenov) 1932:18. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Uzbek SSR: Termez (LENINGRAD ?).

*stackelbergi* (Semenov). Palaearctic: sw USSR.

*stackelbergi* (Semenov) 1932:38. (*Ellampus*). Holotype male; Russian SFSR: Siberia, Altaica, Tshujskaja, Kosh- agatsh (LENINGRAD ?).

*syriacus* (Buysson). Palaearctic: Lebanon, Syria.

- syriacus* (Buysson) 1900:129. (*Ellampus*). Holotype male; Lebanon: Beirut (OXFORD).\*
- tatiana* (Semenov). Palaearctic: Iran, s USSR.
- tatiana* (Semenov) 1967:120. (*Chrysellampus*). Holotype male; Iran: Tabriz (LENINGRAD).\*
- telfordi* (Bohart and Campos). Nearctic: sw USA.
- telfordi* (Bohart and Campos) 1960:249. (*Omalus*). Holotype male; USA: Arizona, Tucson (SAN FRANCISCO).\*
- tenerifensis* (Linsenmaier). Palaearctic: Canary Isls.
- tenerifensis* (Linsenmaier) 1959a:21. (*Omalus*). Holotype male; Spain: Canary Isls., Tenerife (LUZERN).
- tiberiadis* Buysson. Palaearctic: Tunisia, Syria, Israel.
- tiberiadis* Buysson 1887b:171. Holotype female; Israel: Tiberiad (PARIS ?). \*
- truncatus* (Dahlbom). Palaearctic: Europe, s USSR, North Africa.
- truncatus* (Dahlbom) 1831:35. (*Chrysis*). Lectotype male (desig. Morgan 1984); Sweden (LUND).
- anomalus* (Förster) 1853:337. (*Notozus*). Holotype male; Germany: Westphalen Prov. (BERLIN).
- variatus* (Aaron). Nearctic: w North America.
- variatus* (Aaron) 1885:215. (*Elampus*). Lectotype male (desig. Cresson 1928); USA: Montana (PHILADELPHIA).\*
- cressoni* (Aaron) 1885:215. (*Elampus*). Lectotype female (Cresson 1928); USA: Colorado (PHILADELPHIA).\*
- zarudniellus* (Semenov). Palaearctic: s USSR.
- zarudniellus* (Semenov) 1967:119. (*Ellampus*). Holotype male; Uzbek SSR: Tashkent (LENINGRAD).\*

### *Prochridium* Linsenmaier (Fig. 81)

*Prochridium* Linsenmaier 1968:2. Type: *Holopyga hirtipes* Mocsáry 1902a:340. Monobasic and orig. desig. New status.

### Generic diagnosis

Face relatively flat without distinct scapal basin; pronotum strongly convex, without anteromedial or lateral pits; scutum, scutellum, and metanotum flat in profile (Fig. 81); mesopleuron gently rounded, with short scrobal sulcus and without omaulus or scrobal carina; propodeum without distinct lateral angle, instead with obtuse bump, posterior surface without carinae or enclosures, evenly rugose; fore basitarsus with dense, even fringe; tarsomeres with elongate apical 'rake' spines; tarsal claws edentate;



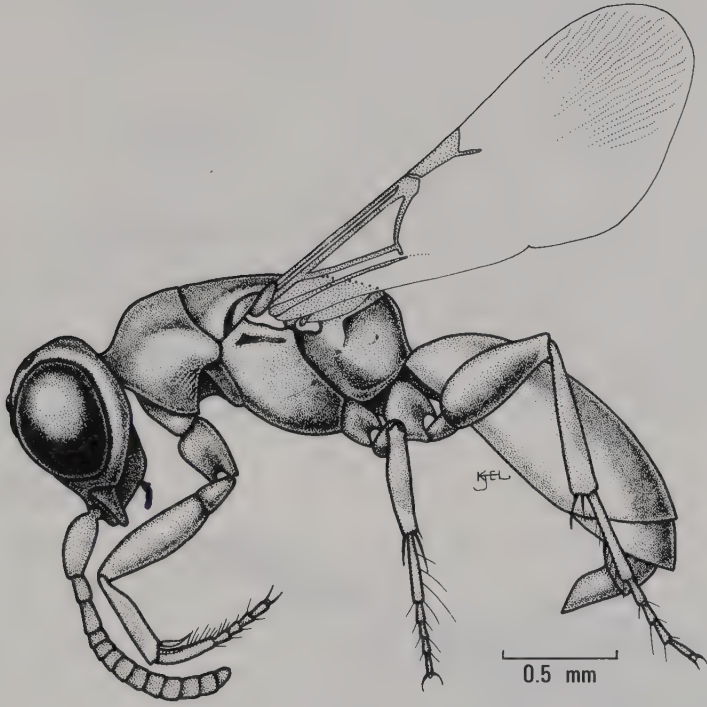


Fig. 81. *Prochridium hirtipes*, female.

mid tibial spur over two-thirds as long as basitarsus; fore wing medial vein gently curved, arising at faint cu-a, Rs less than half as long as medial vein, stigma elongate and abruptly reaching costal margin apically; wing membrane with regular, fine wrinkles; T-I-III somewhat flattened; T-III short, less than one-quarter as long as T-II.

### Host

*Prochridium hirtipes* was recorded as a parasite of the anthophorid bee, *Pararhophites quadratae* Friese by Mocsáry (1902a).

### Distribution

This genus is found in Egypt.

### Discussion

A number of highly derived features characterize *Prochridium*; the tarsal claws are edentate, female fore tarsomeres have elongate apical spines, mid tibial spur is

elongate, and the wing membrane is evenly wrinkled. In addition, the propodeal angle is reduced to a low bump, the mesopleuron is gently rounded and ecarinate, Rs is short, and the flagellum is relatively short, with F-II–XI broader than long. *Prochridium* does not appear to be closely related to any other genus.

### Checklist of *Prochridium*

---

*hirtipes* (Mocsáry). Palaearctic: Egypt, s USSR.

*hirtipes* (Mocsáry) 1902a:340. (*Holopyga*). Holotype female; Egypt: Cairo (BUDAPEST).\*

---

### *Pseudolopyga* Krombein (Figs 82 and 83)

*Pseudolopyga* Krombein 1969:357. Type: *Holopyga taylori* Bodenstein 1939:19. Orig. desig. and monobasic.

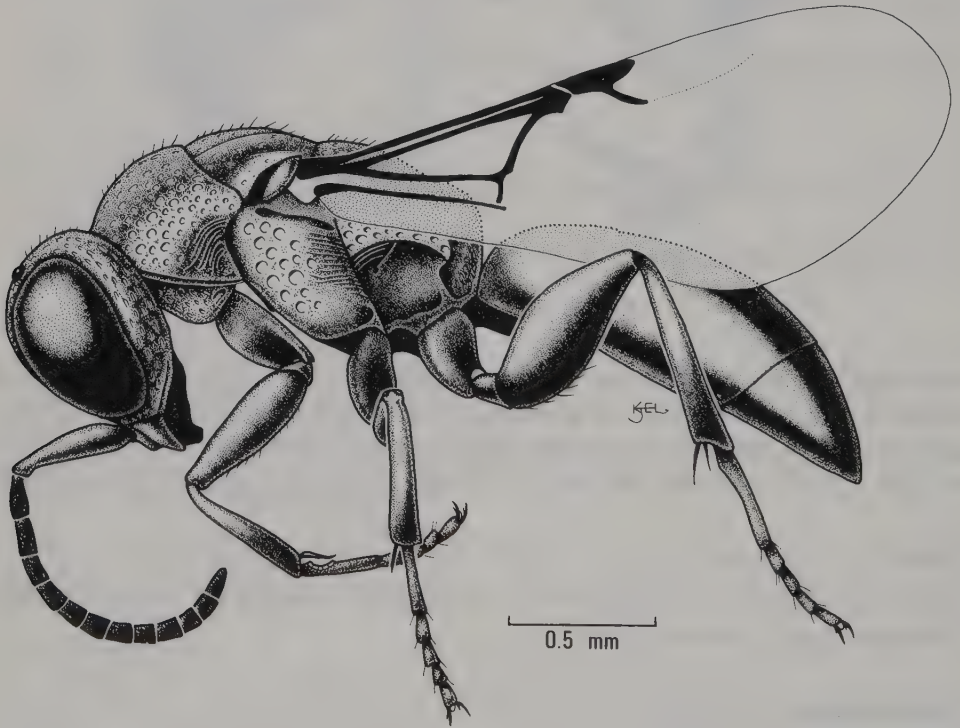


Fig. 82. *Pseudolopyga taylori*, female.

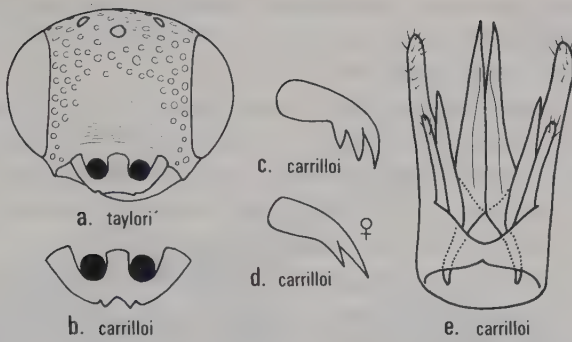


Fig. 83. *Pseudolopyga*. (a) face; (b) detail of clypeus; (c), (d) hind tarsal claw; and (e) genital capsule, ventral. Male, except as indicated.

### Generic diagnosis

Facial setae sparse and erect; scapal basin shallow, with short cross-ridging (Fig. 83a); malar space less than 1 MOD; pronotum gently curved without distinct anterior declivity or carinae, with faint anteromedial pit; notauli deep, sulciform; mesopleuron rounded with short scrobal sulcus and without omaulus or scrobal carina (Fig. 82); fore and mid tarsal claws with two subapical teeth; female hind tarsal claw with one subapical tooth (Fig. 83d), male with two (Fig. 83c); scutellar wing fossa simple; fore wing medial vein straight, arising after cu-a (Fig. 82); T-III margin evenly rounded, although often turned under laterally; male genitalia (Fig. 83e), volsella with digitus and cuspis.

### Hosts

*Pseudolopyga carrilloi* has been reared from cells of the sphecoid wasp *Solierella blaisdelli* (Brid.) and *S. peckhami* (Ashm.) (Carrillo and Caltagirone 1970, Parker and Bohart 1968), and *taylori* from cells of *S. blaisdelli* (Krombein 1967). The parasitic behaviour of *Pseudolopyga* is unusual and is discussed in more detail in Chapter 4. Basically, females place their eggs on the nymphs provisioned by the host, rather than in the host cells.

### Distribution

This genus occurs throughout the more arid regions of western North America, and one species is found in Chile.

### Discussion

*Pseudolopyga* is a small genus of dark-coloured wasps. It is most closely related to

*Holopyga*. Diagnostic features are: the straight medial vein arising well after cu-a, tarsal claw dentition sexually dimorphic, pronotum with anteromedial pit, stigma broad and apically rounded, and mesopleuron ecarinate.

Species distinctions are based on colour, sculpturing, and the shape of the clypeus. The clypeal apex of *carrilloi* is deeply notched medially (Fig. 83*b*). Both Nearctic species are essentially black with blue or purple tints. *Pseudolopyga chilensis* is also dark but it has brassy to bronzy tints, particularly on the abdomen. In addition, the mesopleuron and gena of *taylori* have extensive cross-ridging.

The Nearctic species were reviewed by Kimsey (1982*a*) and Bohart and Kimsey (1982). The Chilean species had been considered a species of *Omalus* until certain features were called to our attention by L. D. French.

### Checklist of *Pseudolopyga*

---

*carrilloi* (Bohart and Brumley). Nearctic: w USA.

*carrilloi* (Bohart and Brumley) 1967:232 (*Hedychridium*). Holotype male; USA: California, Colusa Co., Arbuckle (DAVIS).\*

*chilensis* (Mocsáry). Neotropical: Chile.

*chilensis* (Mocsáry) 1911*b*:444. (*Ellampus*). Lectotype female (desig. French 1986); Chile: Conception (BUDAPEST).\*

*taylori* (Bodenstein). Nearctic: w USA.

*taylori* (Bodenstein) 1939*a*:19. (*Holopyga*). Holotype male; USA: Idaho, Twin Falls Co., Hollister (WASHINGTON).\*

---

### *Pseudomalus* Ashmead (Figs 84 and 85)

*Pseudomalus* Ashmead 1902:229. Type: *Omalus semicircularis* Aaron 1885:215. Orig. desig. and monobasic.

### Generic diagnosis

Scapal basin usually deep and smooth, asetose (Fig. 85*a*); malar space less than 1 MOD and bisected horizontally by genal carina (Fig. 85*b*); head generally lenticular, with carinate post-ocular edge; pronotum deeply concave laterally (Fig. 85*c*); scutum with small, scattered punctures, except large dense ones clumped posteriorly between notauli (Fig. 85*d*); mesopleuron angulate, with juncture of omaulus, verticaulus, and scrobal carina strongly projecting, scrobal sulcus oblique (Fig. 85*c*); scutellum with anterior margin unmodified (Fig. 85*d*); metanotum broadly rounded; fore wing medial cell asetose, medial vein strongly arched and arising before cu-a, stigma short, broad and apically rounded (Fig. 84); fore femur carinate ventrally and often subapically broadened particularly in females (Fig. 85*e*); tarsal claws with 3–5 subsidiary teeth (Fig. 85*j*); T-I–III strongly convex; T-III lateral margin straight or sinuate, usually



deeply notched apicomediaally, without transparent apical rim (Fig. 85f-b); genital capsule (Fig. 85i).

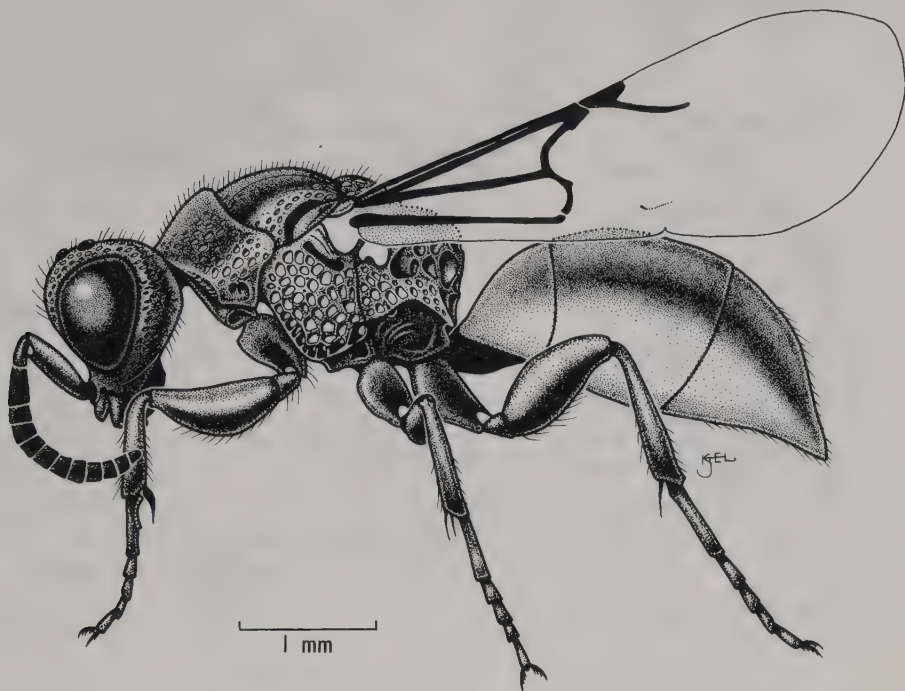


Fig. 84. *Pseudomalus auratus*, female.

## Hosts

These wasps are nest parasites of the sphecoid subfamily Pemphredoninae (Table 6).

## Distribution

*Pseudomalus* occurs in the Holarctic Region, with a disproportionately large number from southern USSR.

## Discussion

*Pseudomalus* is the largest of the genera split from *Omalus* in the broad sense, with 42 species. The most distinctive feature of this genus is the pattern of scutal punctation, with the punctures clumped posteriorly between the notauli. Unfortunately, this area is often obliterated when the specimen is pinned. Additional diagnostic features are the malar space horizontally bisected by the genal carina, scutellar anterior margin unmodified, mesopleuron strongly projecting laterally at the juncture of the omaulus and scrobal carina and verticulus, and T-III usually with a deep apicomediaal notch.

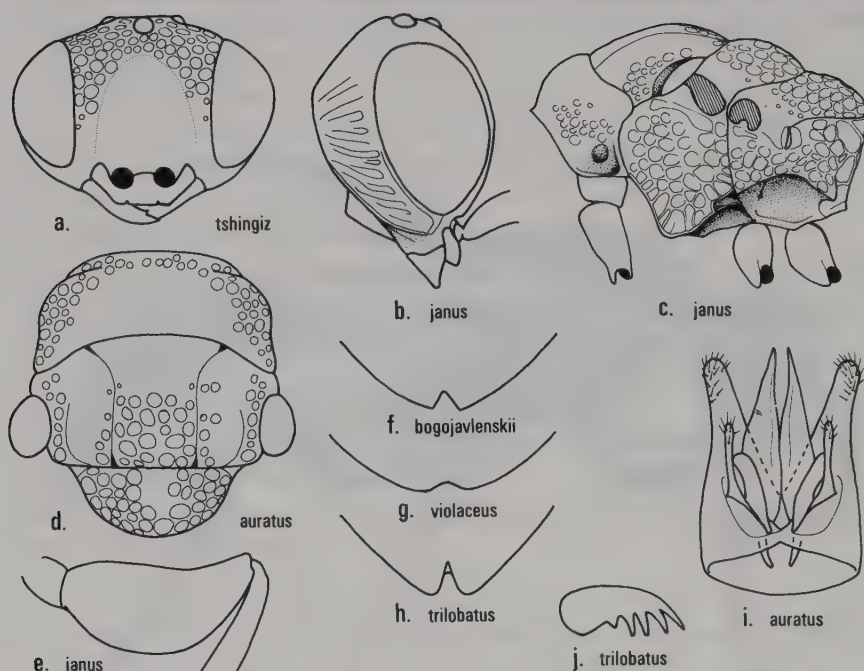


Fig. 85. *Pseudomalus*, males. (a) face; (b) head, lateral; (c) thorax, lateral; (d) thorax, dorsal; (e) fore femur; (f)–(h) T-III, apical margin; (i) genital capsule, ventral; and (j) hind tarsal claw.

Colour and differences in sculpturing are the characters most commonly used to distinguish species. The shape of the apical margin and notch of T-III are particularly useful. Most species have the thorax and abdomen concolorous. However, some Palaearctic ones, including *auratus*, *hirtus*, and *bogdanovi*, have the thorax purple, blue, or green, and the terga bright brassy or coppery.

This genus needs extensive revision. Species distinctions are obscure in a number of instances and badly need re-examination.

As with the other genera split from *Omalus*, the sexes are difficult to separate without exserting the genitalia.

### Checklist of *Pseudomalus*

*abdominalis* (Buysson). Palaearctic: North Africa, Syria, Israel.

*abdominalis* (Buysson) 1887b:169. (*Omalus auratus* var.). Syntype male, female; Syria, Israel (PARIS ?).

*auratus* (Linnaeus). Palaearctic: widespread, Nearctic: scattered introductions.

Table 6. Sphecid hosts of *Pseudomalus* species

Chrysidid species	Host species	Reference
<i>auratus</i>	<i>Passaloecus lethifer</i> Shuck.	Grandi (1961)
	<i>Passaloecus singularis</i> Dahlb. (as <i>tenuis</i> A. Mor.)	
	<i>Cemonus littoralis</i> Wagn.	
	<i>P. unicolor</i> (Panzer)	
	<i>Cemonus rugifer</i> Dahlb.	Tsuneki (1970a)
		Buysson (1887)
	<i>Cemonus rugifer</i> Dahl. (as <i>unicolor</i> Jur.)	Mocsáry (1889)
<i>violaceus</i>	<i>Pemphredon lugubris</i> (F.)	Alfken (1915)
	<i>Cemonus unicolor</i> (Panzer.)	
<i>djozanus</i>	<i>Pemphredon flavistigma</i> Thom.	Tsuneki (1970a)
	<i>P. sp.</i>	
<i>punctatus</i>	<i>P. sp.</i>	
<i>janus</i>	<i>P. concolor</i> Say	Krombein (1979)
	<i>P. confertini</i> W. Fox (as <i>errans</i> Roh.)	
<i>purpuratus</i>	<i>P. lethifer</i> (Shuck.)	Bohart and Campos (1960)
	<i>P. sp.</i>	
	<i>Passaloecus cuspidatus</i> F. Sm.	
	<i>Stigmus americanus</i> Pack.	
<i>trilobatus</i>	<i>Cemonus grinnelli</i> (Roh.) (as <i>giffardi</i> Roh.)	

*auratus* (Linnaeus) 1758:572. (*Sphex*). Holotype female; Europe (LONDON).\*

*gloriosus* (Fabricius) 1793:242. (*Chrysis*). Holotype female; 'Barbaria' (COPENHAGEN). N.  
synonymy.\*

*sinuosus* (Say) 1828:53. (*Hedychrum*). Holotype female; USA: Indiana (destroyed).

*minimus* (Dufour and Perris) 1840:39. (*Hedychrum*). Syntype sexes ?; France (Lost ?).

*curtiventris* (Tournier) 1879:88. (*Ellampus*). Syntype male, female; Russian SFSR: Sarepta  
(GENEVA).

- maculatus* (Buysson) 1887b:170. (*Ellampus auratus* var.). Syntype male, female; France (PARIS).\*
- virescens* (Mocsáry) 1889:91. (*Ellampus auratus* var.). Syntypes; Russian SFSR: Sarepta, Romania: Dobrutscha, Hungary (BUDAPEST, GENEVA).\*
- cupratus* (Mocsáry) 1889:92. (*Ellampus auratus* var.). Holotype male (not female); Yugoslavia: Dalmatia (BUDAPEST).\*
- gasparinii* (Mocsáry) 1889:92. (*Ellampus auratus* var.). Lectotype female (desig. French 1986); Yugoslavia: Dalmatia (BUDAPEST).\*
- obscurus* (Tournier) 1889:153. (*Omalus auratus* var.). Syntypes; Switzerland: Peney (Mus.?).
- viridiventris* (Mocsáry) 1890:50. (*Ellampus auratus* var.). Syntypes; USSR: 'Caucasus' (ZURICH).
- anthracinus* (Buysson) (In André) 1892:709. (*Ellampus auratus* var.). Holotype male; France: Normandie (PARIS ?).
- indigoteus* (Buysson) (In André) 1893:150. (*Ellampus auratus* var.). Holotype female; France (PARIS ?).
- nigradorsus* (Tsuneki) 1953a:54. (*Ellampus auratus* f.). Syntype males, female; Japan, Korea, Manchuria (TSUKUBA). Invalid name.
- nigradorsus* (Tsuneki) 1970a:27. (*Ellampus auratus* ssp.). Based on *nigradorsus* Tsuneki 1953a.
- babai* (Tsuneki). Palaearctic: Japan.
- babai* (Tsuneki) 1979:13. (*Omalus*). Holotype male; Japan: Hokkaido, Rishiri Isl. (TSUKUBA).
- bergi* (Semenov). Palaearctic: China.
- bergi* (Semenov) 1932:43. (*Ellampus*). Holotype male; China: Zhongguo, Alatay Mts., Dzungaria (LENINGRAD).\*
- bergiellus* (Semenov). Palaearctic: w USSR (Moldavia).
- bergiellus* (Semenov) 1932:33. (*Ellampus*). Holotype male; Moldavian SSR: Kishinev (LENINGRAD).\*
- bogdanovi* (Radoszkowski). Palaearctic: s USSR, Greece.
- bogdanovi* (Radoszkowski) 1877:5. (*Holopyga*). Holotype male; Uzbek SSR: Sarafschan (MOSCOW).\*
- punctulatus* (Mocsáry) 1882:30. (*Ellampus*). Holotype female; Hungary (BUDAPEST). Nec Dahlbom 1854.\*
- rudowi* (Buysson) 1887b:169. (*Omalus*). Syntype male, female; Greece: Attica (Rudow col.).
- cerberus* (Trautmann) 1926a:4. (*Ellampus bogdanovii* var.). Type ?; Anatolia (BERLIN).
- kerteszi* (Trautmann) 1926a:4. (*Ellampus bogdanovii* var.). Type ?; Hungary (BERLIN).
- unicolor* (Trautmann) 1926a:4. (*Ellampus bogdanovii* var.). Type ?; Greece: Crete, Smyrna (BERLIN).
- bogojavlenskii* (Semenov). Palaearctic: s USSR.



- bogojavlenskii* (Semenov) 1932:42. (*Ellampus*). Holotype male; Tadzhik SSR: Pamir, Kshtut (MOSCOW ?).
- gussakovskii* (Semenov and Nikol'skaya) 1954:95. (*Ellampus*). Syntype male, female; Tadzhik SSR: Kondara (LENINGRAD). N. synonymy.\*
- borodini* (Semenov). Palaeartic: sw USSR.
- borodini* (Semenov) 1932:32. (*Ellampus*). Holotype male; Russian SFSR: Ural, Uralsk (LENINGRAD ?).
- conradti* (Bischoff). Palaeartic: n China.
- conradti* (Bischoff) 1910:437. (*Ellampus*). Syntype male, female; China: Singkiang, Tochta, Chon, Jarkand (BERLIN).
- deauratus* (Mocsáry). Palaeartic: n China.
- deauratus* (Mocsáry) 1914:2. (*Ellampus*). Holotype female; China: Tientsin (LONDON).\*
- djozanus* (Tsuneki). Palaeartic: Japan.
- djozanus* (Tsuneki) 1970a:28. (*Omalus*). Holotype female; Japan: Sapporo (TSUKUBA).
- hondonis* (Tsuneki) 1977:2. (*Omalus djozanus* ssp.). Holotype female; Japan: Hyogo Pref., Sasayama (TSUKUBA).
- grandis* (Tsuneki). Palaeartic: Japan.
- grandis* (Tsuneki) 1950:61. (*Ellampus*). Holotype female; Japan: Tochigi Pref. (SAPPORO).
- helveticus* (Linsenmaier). Palaeartic: Switzerland.
- helveticus* (Linsenmaier) 1959a:16. (*Omalus*). Holotype female; Switzerland: Engadin (CHUR).
- heptapotamicus* (Semenov). Palaeartic: s USSR.
- heptapotamicus* (Semenov) 1932:45. (*Ellampus*). Holotype male; Kazakh SSR (Semiretshj'e): Vernyji (LENINGRAD ?).
- hirtus* (Semenov). Palaeartic: s USSR.
- hirtus* (Semenov) 1932:28. (*Ellampus*). Lectotype female (not male) (desig. Kimsey 1986c); Kirghiz SSR: Alatau Talasskij Mts. (LENINGRAD).\*
- incertus* (Haupt). Palaeartic: Germany.
- incertus* (Haupt) 1956:46. (*Omalus*). Holotype female; Germany: Halle (HALLE ?).
- itamii* (Tsuneki). Palaeartic: Japan.
- itamii* (Tsuneki) 1975:29. (*Omalus*). Holotype female; Japan: Niigata, Shidaihama (TSUKUBA ?).
- janus* (Haldeman). Nearctic: USA, s Canada.
- janus* (Haldeman) 1844:53. (*Hedychrum*). Neotype female (desig. Bohart and Campos 1960); USA: New York, Mt. MacIntire (ITHACA).\*
- coruscans* (Norton) 1879:234. (*Elampus*). Lectotype female (desig. Cresson 1928); Canada

(PHILADELPHIA).\*

*coruscans* (Aaron) 1885:214. (*Omalus*). Misspelling of *coruscans* (Norton) 1879.

*semicircularis* (Aaron) 1885:215. (*Omalus*). Lectotype male (desig. Cresson 1928); USA: Colorado (PHILADELPHIA).\*

*joannisi* (Buysson). Palaearctic: China, Manchuria, Korea.

*joannisi* (Buysson) 1909:207. (*Ellampus*). Holotype female; China: Nankin (PARIS).\*

*masalskii* (Semenov). Palaearctic: s USSR.

*masalskii* (Semenov) 1932:47. (*Ellampus*). Holotype male; Uzbek SSR: Samarkand, Kattukurgan (LENINGRAD ?).

*mordilkoi* (Semenov). Palaearctic: n China.

*mordilkoi* (Semenov) 1932:36. (*Ellampus*). Holotype female; China: Singkiang, Chotan, Sajbag (LENINGRAD).

*nipponicus* (Tsuneki). Palaearctic: Japan.

*nipponicus* (Tsuneki) 1970a:28. (*Omalus*). Holotype female; Japan: Hokkaido (TSUKUBA).

*perraudini* (Linsenmaier). Palaearctic: s France.

*perraudini* (Linsenmaier) 1968:10. (*Omalus*). Holotype female; France: Corsica, Aleria (LUZERN).

*petri* (Semenov). Palaearctic: s USSR.

*petri* (Semenov) 1932:27. (*Ellampus*). Holotype female; Kazakh SSR (Semiretshj'e): Pishpek Dist. (LENINGRAD).

*punctulatus* (Dahlbom). Palaearctic: s Europe, sw USSR, North Africa.

*punctulatus* (Dahlbom) 1854:33. (*Omalus*). Syntypes; France: Landes, St. Sever; Sicily (LUND ?).

*parvulus* (Dahlbom) 1854:31. (*Omalus*). Holotype; Portugal: Lusitania (BERLIN).

*socius* (Mocsáry) 1889:88. (*Elampus*). Holotype male; Algeria: Setif (GENEVA).

*punctatus* (Uchida). Palaearctic: Japan, Korea.

*punctatus* (Uchida) 1927:152. (*Philoctetes*). Syntype male, female; Japan (HOKKAIDO).

*corensis* (Uchida) 1927:153. (*Philoctetes punctatus* var.). Holotype male; Korea: Seiryori (HOKKAIDO).

*purpuratus* (Provancher). Nearctic: widespread.

*purpuratus* (Provancher) 1881:302. (*Elampus*). Lectotype female (desig. Bohart and Kimsey 1982); Canada (QUEBEC).\*

*macswaini* (Bohart and Campos) 1960:244. (*Omalus*). Holotype male; USA: Wyoming, Teton Co., Jenny Lake (SAN FRANCISCO).\*

*pusillus* (Fabricius). Palaearctic: Europe, s USSR, Egypt.

*pusillus* (Fabricius) 1804:176. (*Chrysis*). Holotype; Austria (COPENHAGEN).\*

*minutus* (Wesmael) 1839:173. (*Elampus*). Syntypes; Belgium (BRUSSELS).

- schmiedeknechti* (Mocsáry) 1889:83. (*Elampus*). Syntype male, female; Germany (BUDAPEST, BERLIN).
- bulgariensis* (Linsenmaier) 1959a:19. (*Omalus pusillus* ssp.). Holotype male; Bulgaria: Bilo (ZURICH).
- semicupreus* (Linsenmaier) 1959b:233. (*Omalus pusillus* ssp.). Holotype male; Spain: Alicante (LUZERN).
- ruthenus* (Semenov). Palaearctic: sw USSR.
- ruthenus* (Semenov) 1932:39. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Russian SFSR: Shipovo (LENINGRAD).\*
- saturatus* (Semenov). Palaearctic (?).
- saturatus* (Semenov) 1932:48. (*Ellampus*). Description left incomplete, sex and locality unknown.
- similis* (Mocsáry). Palaearctic: Hungary.
- similis* (Mocsáry) 1889:96. (*Elampus*). Holotype male; Hungary: Transylvania (BUDAPEST).\*
- sinensis* (Tsuneki). Palaearctic: n China.
- sinensis* (Tsuneki) 1947:44. (*Ellampus*). Holotype female; China: Beijing (TSUKUBA).
- nigricans* (Tsuneki) 1948:119. (*Ellampus sinensis* f.). Holotype male; China: Kiu-Taiyuan (KYUSHU ?). Invalid name.
- viridauratus* (Tsuneki) 1948:118. (*Ellampus sinensis* f.). Syntype male, female; China (KYUSHU). Invalid name.
- speculum* (Say). Nearctic: w North America, widespread.
- speculum* (Say) 1836:225. (*Hedychrum*). Neotype female (desig. Bohart and Campos 1960); USA: Washington, Rainier National Park, White River (SAN FRANCISCO).\*
- subopacus* (Semenov and Nikol'skaya). Palaearctic: s USSR.
- subopacus* (Semenov and Nikol'skaya) 1954:95. (*Ellampus*). Lectotype female (desig. Kimsey 1986c); Tadzhik SSR: Kondara (LENINGRAD).\*
- tarnanii* (Semenov). Palaearctic: Iran, s USSR.
- tarnanii* (Semenov) 1932:40. (*Ellampus*). Lectotype male (desig. Kimsey 1986c); Uzbek SSR: Termez (LENINGRAD).\*
- testaceicornis* (Buysson). Palaearctic: sw USSR.
- testaceicornis* (Buysson) (In André) 1892:144. (*Elampus*). Holotype male; Russian SFSR: Kazan (PARIS).\*
- triangulifer* (Abeille). Palaearctic: Europe, Turkey.
- triangulifer* (Abeille) 1877:65. (*Omalus*). Lectotype female (desig. Kimsey 1986c); France: 'Sainte-Baume' (PARIS).\*
- trilobatus* (Bohart and Campos). Nearctic: w USA, sw Canada.
- trilobatus* (Bohart and Campos) 1960:245. (*Omalus*). Holotype male; USA: California: Napa

Co., Samuel Springs (now Lake Berryessa) (SAN FRANCISCO).\*

*tshingiz* (Semenov). Palaearctic: Mongolia.

*tshingiz* (Semenov) 1954a:93. (*Ellampus*). Holotype male; Mongolia: Sachow Gobi (LENINGRAD).\*

*turkestanicus* (Mocsáry). Palaearctic: s USSR.

*turkestanicus* (Mocsáry) 1889:101. (*Ellampus*). Holotype; Uzbek SSR: Tashkent (KRAKOW ?).

*violaceus* (Scopoli). Palaearctic: widespread.

*violaceus* (Scopoli) 1763:298. (*Sphex*). Type ?; Europe (Mus. ?).

*coeruleus* (Retzius) 1783:66. (*Chrysis*). Type ?; Europe (Mus. ?).

*micans* (Olivier) 1790:677. (*Chrysis*). Type ?; Sweden (Mus. ?).

*coerulescens* (Lepeletier) 1806:122. (*Hedychrum*). Syntype male, female; France: Paris (PARIS ?).

*nitidus* (Panzer) 1805: Pl.97, Fig.17. (*Omalus*). Holotype female; Germany (BERLIN ?).

*fuscipennis* (Dahlbom) 1829:15. (*Chrysis*). Syntypes; Switzerland: Omberg, Bjornstorp (MUS.?).

*coeruleus* (Dahlbom) 1831:33. (*Chrysis*). Holotype female; Switzerland (Mus. ?).

*imperialis* (Shuckard) 1836:174. (*Hedychrum bidentulum* var.). Holotype; Great Britain (LOST?).

*praestans* (Förster) 1853:353. (*Ellampus*). Holotype female; Italy (BERLIN).

*virens* (Mocsáry) 1889:107. (*Ellampus violaceus* var.). Lectotype male (desig. Móczár 1964a:435); Germany: Thuringia, Blankenburg (BUDAPEST).

*aeneus* (Trautmann) 1926a:5. (*Philoctetes micans* var.). Type ?; Spain: Castilia (BERLIN). Nec Fabricius 1787.

*viridis* (Trautmann) 1926a:4. (*Philoctetes micans* var.). Syntype females; Yugoslavia: Serbia, Greece: Zakynthos (Zante) (BERLIN).

## *Xerochrum* Bohart (Figs 86 and 87)

*Xerochrum* Bohart 1980:133. Type: *Xerochrum rubeum* Bohart 1980:134. Orig. desig. and monobasic.

## Generic diagnosis

Facial setae sparse and erect; scapal basin indistinct and shallow with few cross-ridges (Fig. 87a); inter-ocellar sulcus present; malar space about 2 MOD; mesopleuron rounded with sharp ventral angle, omaulus straight and weak (Fig. 86); notauli sulciform; scutellar wing fossa without projection; fore femur sub-basally angulate; mid and hind tibia without pits or depressions on inner surface; tarsal claws edentate (Fig. 87b); fore wing medial vein slightly curved, arising at cu-a, Rs stub less than half as long as medial vein (Fig. 86); abdomen primarily non-metallic red; T-III evenly rounded; male genitalia (Fig. 87c), volsella with digitus and cuspis.



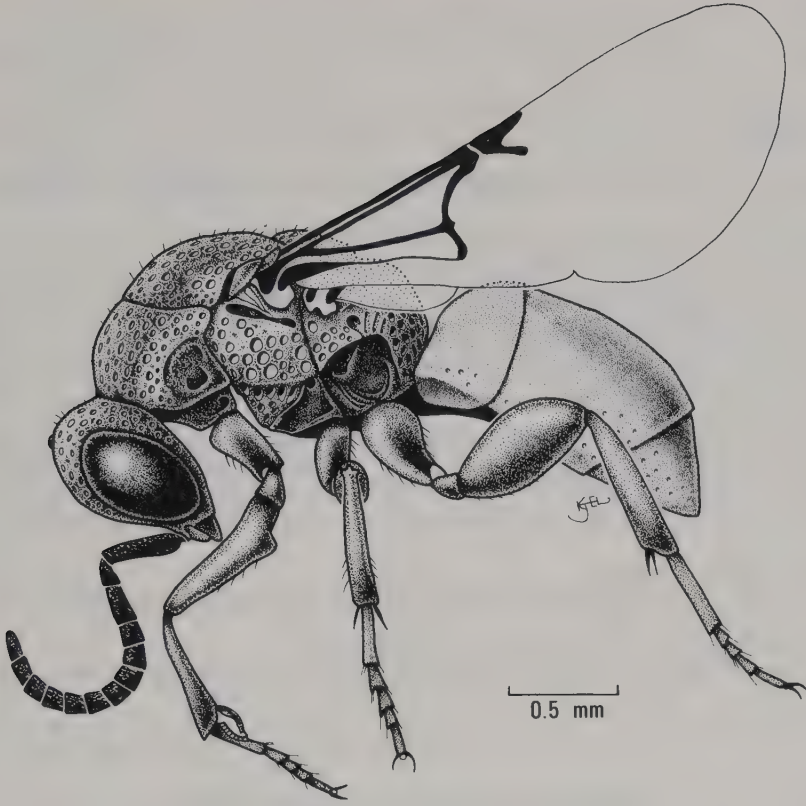


Fig. 86. *Xerochrus rubeum*, male.

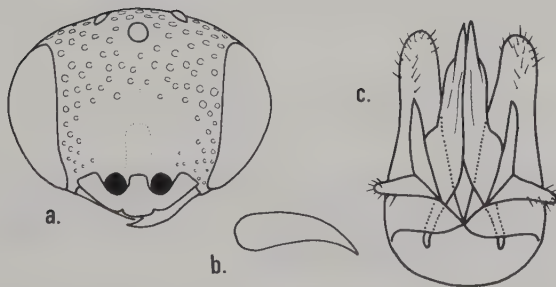


Fig. 87. *Xerochrus rubeum*, male. (a) face; (b) hind tarsal claw; and (c) genital capsule, ventral.

## Hosts

Unknown.

## Distribution

*Xerochrus* occurs in south-western North America, including Baja California.

## Discussion

The non-metallic red abdomen is the most striking feature of *Xerochrus*. This characteristic also occurs in *Hedychridium roseum* and *semirufum*, but the edentate tarsal claws and flat, polished and aetose face of *Xerochrus* will immediately distinguish it from these. The traces of anterolateral carinae on the pronotum indicate a relationship with *Hedychridium*. Other than the edentate tarsal claws *Xerochrus* has few other derived characteristics. The sub-basally elbowed fore femur and water-clear wings are also diagnostic.

## Checklist of *Xerochrus*

---

*rubeum* Bohart. Nearctic: sw USA, Mexico (Baja California).

*rubeum* Bohart 1980:134. Holotype male; USA: California, Riverside Co., Thousand Palms (DAVIS).\*

---

## TRIBE ALLOCOELIINI

This small monogeneric group can be immediately distinguished by the non-metallic coloration, two visible abdominal terga, dentate tarsal claws, and small, partly hidden tegula.

These wasps occur in southern Africa where they are nest parasites of masarid wasps. They are infrequently collected, and as a result are rare in collections.

## DIAGNOSTIC CHARACTERISTICS

1. Tongue sexually dimorphic: female tongue short, with reduced cardines, galeae, and glossa, and lying flat in oral fossa; male tongue with elongate cardines, galeae, and glossa and protruding from oral fossa.
2. Gena with vertical carina extending from mandibular socket.
3. Pronotum with sharp lateral angle or carina and weakly declivitous anteriorly.
4. Propleura often with sharp anterolateral tooth or angle.

5. Scutum with notauli and parapsides obsolescent, obscured by coarse sculpturing.
6. Tegula small and partly covered by notum.
7. Mesopleuron with subalar fossa and scrobal pit; oblique mesopleural carina, faint scrobal sulcus, and vertical postscrobal carina sometimes present.
8. Metanotum evenly convex, without lateral angle.
9. Propodeum abruptly declivitous posteriorly, without dorsal surface; lateral angle triangular or broad and irregularly lobate, originating just above hind coxa.
10. Tarsal claws with one medial tooth.
11. Fore wing venation reduced, without indication of R<sub>1</sub>; costal, medial, and sub-medial cells complete; Rs length variable; M+Cu present or absent.
12. Hind wing with short costa, Sc, and Cu veins.
13. Abdomen with two visible terga and three sterna in both sexes, T-II apically thickened and may be dentate; segments II–V with spiracle located on laterotergite.
14. Body non-metallic red, brown, black and sometimes whitish.

*Allocoelia* Mocsáry (Figs 5b, 7e, 88 and 89)

*Anthracias* Klug 1839:2. (no spp.). Type: *Anthracias capensis* Smith 1874b:455. Monobasic. Nec *Anthracias* Dejean 1839.

*Allocoelia* Mocsáry 1889:62. Type: *Anthracias capensis* Smith 1874b:455. Monobasic.

*Parnopidea* Brauns 1903:460. Type: *Parnopidea mocsaryi* Brauns 1903:460. Monobasic.

### Generic diagnosis

Brow broadly conical medially; scapal basin well defined (Fig. 89a); genal carina vague; mandibles with one subapical tooth; pronotum weakly declivitous anteriorly; scutal notauli and parapsides obscured by coarse punctation; mesopleuron with verticallus and often with scrobal sulcus and omaulus (Fig. 5b and 88); fore wing with Rs half as long as marginal cell (if complete) to nearly absent (Figs 7e and 88), medial and cubital veins most commonly absent; propodeum lateral angle triangular or more often broad and irregularly lobate (Fig. 89d, e), originating just above hind coxa and below spiracle; T-II thickened subapically with 0, 2, or 5 apical teeth (Figs 88 and 89b, c); male terminalia (Fig. 89g, h): gonocoxa apically rounded and curved; cuspis elongate, tapering to apical point and submedially bent inward (except *capensis*); digitus slender and shorter than cuspis; aedeagus usually short and abruptly tapering apically.

### Hosts

*Allocoelia* species are nest parasites of Masaridae. *Allocoelia capensis* has been reared

from nests of *Ceramius lichtensteinii* (Klug) and *latinota* from *C. capicola* Brauns (Gess 1973). Gess and Gess (1980) gave *Jugurtia confusa* Richards as a probable host of *A. bidens*.

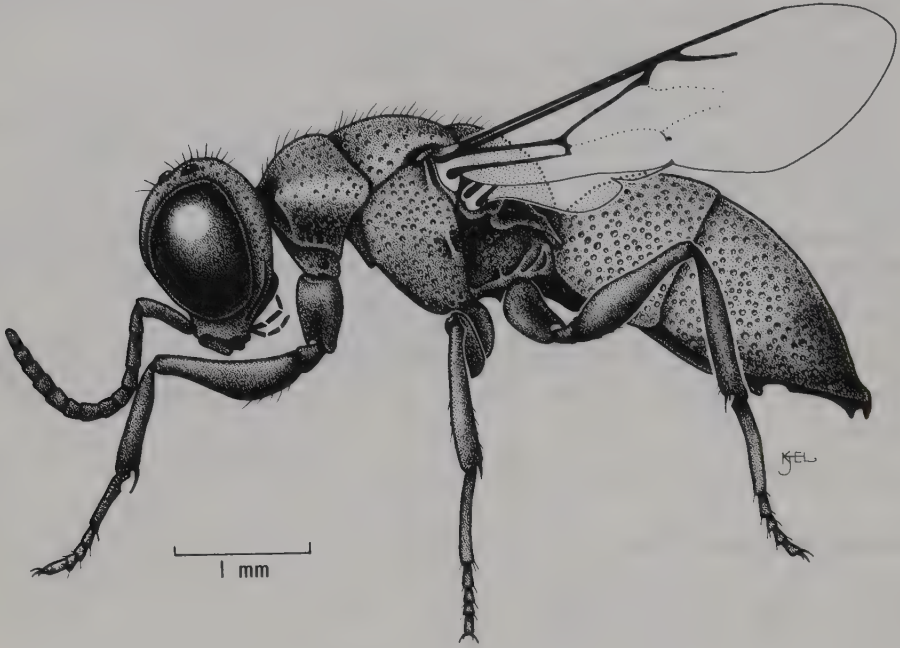


Fig. 88. *Allocoelia quinquedens*, female.

## Distribution

This genus occurs in southern Africa, specifically in Namibia, Zimbabwe, and South Africa.

## Discussion

The genus *Allocoelia* is one of the more unusual groups in the Chrysidinae, and is distinguished by several characteristics unique in the Chrysididae, including having a sexually dimorphic tongue, and two external terga, with the second segment elongate in both sexes. Other diagnostic features of this genus are the non-metallic coloration, small highly reduced tegula, and unusual position and shape of the propodeal angle.

Species range in length from 2 mm (*mocsaryi*) to 10 mm (*capensis*), and are primarily distinguished by modifications of facial dimensions, wing venation, and the shape of the flagellomeres, propodeal angle, T-II and male hind tarsomeres. Three species have two (*bidens*) or five (*quinquedens*, *edneyi*) teeth on the apical margin of T-II. Male *capensis*



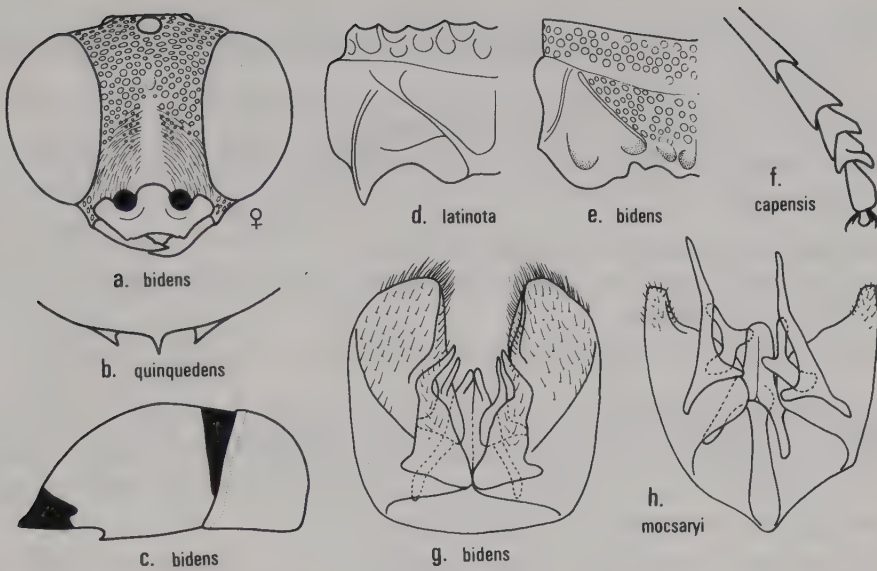


Fig. 89. *Allocoelia*, males. (a) face; (b) T-III, apical rim; (c) abdomen, lateral; (d), (e) propodeum, left side of posterior face; (f) hind tarsis; and (g), (h) genital capsule.

and *minor* have the penultimate hind tarsomere lobate. The most complete fore wing venation can be seen in *capensis*, with a long, sclerotized Rs and medial vein, and the most reduced in *mocsaryi*, without the outer branch of the media, and Rs reduced to a short stub.

Most *Allocoelia* species are variously coloured with red and black. Only *trautmanni* is entirely black, and *bidens* (Fig. 89c) and *mocsaryi* have whitish markings as well.

*Allocoelia* was revised, with keys and figures, by Kimsey (1986a).

### Checklist of *Allocoelia*

*bidens* Edney. Afrotropical: South Africa (Cape Prov.).

*bidens* Edney 1947:197. Lectotype male (desig. Kimsey 1986a); South Africa: Cape Prov., Matjiesfontein (LONDON).\*

*capensis* (Smith). Afrotropical: South Africa, s Namibia.

*capensis* (Smith) 1874b:455. (*Anthracias*). Holotype female; South Africa: Cape Prov., 'Cape of Good Hope' (LONDON).\*

*edneyi* Kimsey. Afrotropical: South Africa (Cape Prov.).

*edneyi* Kimsey 1986a:90. Holotype female; South Africa: Cape Prov., Worcester (DAVIS).\*

*glabra* Edney. Afrotropical: South Africa, s Namibia.

*glabra* Edney 1947:203. Lectotype female (desig. Kimsey 1986a); South Africa: Cape Prov. (LONDON).\*

*latinota* Edney. Afrotropical: South Africa (Cape Prov.).

*latinota* Edney 1947:199. Lectotype male (desig. Kimsey 1986a); South Africa: western Cape Prov. (PRETORIA-TM).\*

*minor* Mocsáry. Afrotropical: South Africa (Cape Prov.).

*minor* Mocsáry 1908b:526. (*capensis* var.). Holotype male; South Africa: Cape Prov., Willowmore (BUDAPEST).\*

*emarginata* Edney 1947:202. Holotype male; South Africa: Cape Prov. (LONDON).\*

*mocsaryi* (Brauns). Afrotropical: Namibia, Zimbabwe.

*mocsaryi* (Brauns) 1903:460. (*Parnopidea*). Holotype female; South Africa: 'Cape Colony' (PRETORIA-TM).

*quinquedens* Edney. Afrotropical: South Africa (Cape Prov.).

*quinquedens* Edney 1947:198. Lectotype male (desig. Kimsey 1986a); South Africa: Cape Prov., Namaqualand, Bowesdorp (LONDON).\*

*trautmanni* Brauns. Afrotropical: South Africa (Cape Prov.).

*trautmanni* Brauns 1928:384. Holotype male; South Africa: Cape Prov. (Namaqualand) (PRETORIA-TM).\*

*nigra* Edney 1947:204. Holotype male; South Africa: Cape Prov., van Rhynsdorp (PRETORIA-TM).\*

## TRIBE CHRYSIDINI

With more than 1200 recognized species and 24 genera, the Chrysidini qualify as the largest group in the family. In addition, the average specimen size is larger than in any of the other tribes. This last fact alone accounts for more frequent collection and a more prominent place in collections.

A member of this tribe always has simple tarsal claws. In addition nearly all have a transverse, subapical pit row on T- III, and a transverse preoccipital welt or carina. Rare exceptions have at least two of the three conditions, and this differentiates them from individuals in any other tribe.

### DIAGNOSTIC CHARACTERISTICS

1. Mandibles relatively slender with 1–2 subapical teeth or subapical notch.
2. Occiput with transverse preoccipital welt or carina just above foramen, ending

laterally in hook or lobe, except one or two rare species.

3. Pronotum with two or four pits on anterior face, rarely none.
4. Mesopleuron with scrobal sulcus, when present horizontally bisecting pleuron.
5. Metapleuron with well-developed dorsal projection.
6. Propodeal spiracle located below transpleural carina.
7. Scutellum with lateral lobe in wing fossa.
8. Fore wing usually with sclerotized discoidal cell.
9. Tarsal claws edentate.
10. Tegula unmodified.
11. Abdomen with three exposed terga and sterna in both sexes, S-IV occasionally external also, T-II-IV with spiracles on laterotergite; T-III with subapical pit row, apical margin usually dentate or at least medially notched.

## SYSTEMATICS

Phylogenetic relationships are shown in Fig.90. A number of characteristics are of value in separating genera, and they represent derived conditions in the tribe. These features are used in the phylogenetic tree and the numbers correspond with those given below.

1-4. Flagellomere shape. In the primitive form of the flagellum the flagellar articles are cylindrical in cross-section and somewhat longer than broad. Several derivations occur in the Chrysidini. Two involve modifications of the male flagellum. In *Pleurochrysis* males the intermediate flagellomeres are usually broader than long or even flagelliform (1). American *Chrysura* males (Fig. 116g) have these articles lobate beneath (2). Finally, (Fig. 130a) in *Pentachrysis* F-I is five or more times as long as broad (3). In *Praestochrysis* the intermediate flagellomeres are broader than long in both sexes (4).

5. Facial sculpturing. The presence of a discrete scapal basin is the dominant condition in Chrysidinae. Therefore the absence of any distinctive sculpturing in this region is derived. In *Chrysura* and *Chrysurrissa* the scapal basin is barely indicated. The face is essentially flat, densely punctate, and appears granulose (Fig. 116a).

6. Facial foveae. A feature unique to *Caenochrysis* is the presence of a deep fovea in the scapal basin above each antennal socket (Fig. 98a).

7-8. Facial shape. The *Chrysidea* line has an unusually modified head (Fig. 102a). The brow is bulging and the scapal basin is short and often deep, making the head appear somewhat round or transversely oval in front view (7). *Stilbum* has an unusually long narrow face (Fig. 148a) where the narrowest part of the face is about 0.25 times as long as the distance from the mid ocellus to the clypeal apex (8).

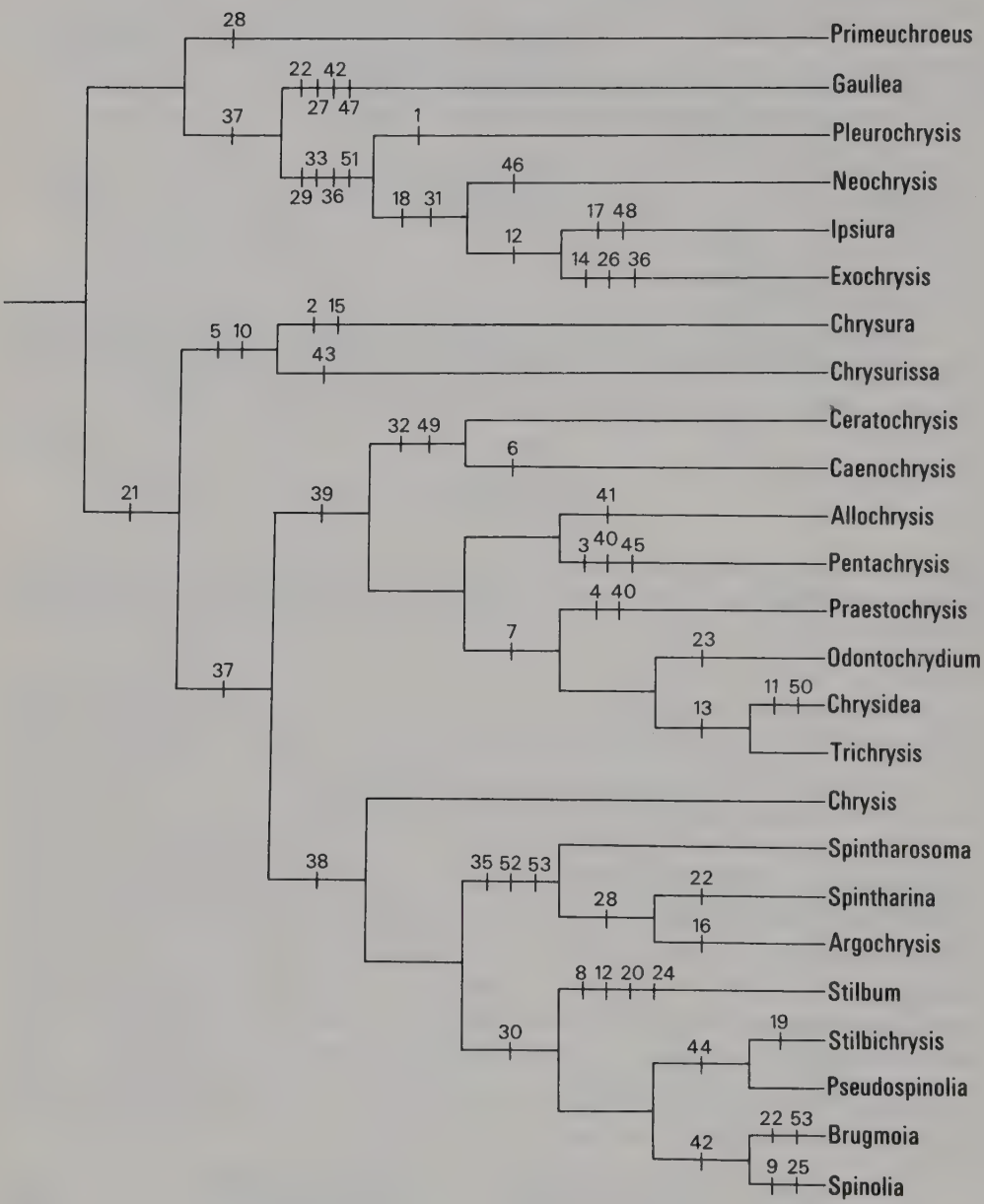


Fig. 90. Phylogenetic relationships among genera of Chrysidini. Numbers correspond with those give for derived character states in the text.



9. Facial patches. A derived feature unique to *Spinolia* is the presence of two broad, rounded, flattened, and often striate patches on the frons where a TFC would usually occur in other genera (Fig. 140a). These patches are usually more clearly indicated in males.

10–12. TFC. The presence of a TFC is a diagnostic feature of the Chrysidini. There are three derived conditions in the tribe. The first involves secondary loss of the TFC in the *Chrysura* line (10). We are assuming this is a secondary loss because other features of the face are derived as well. Secondly, in *Chrysidea* this carina is double (Fig. 102a) (11). Finally, *Stilbum* and the American genera *Ipsiura* and *Exochrysis* have a prominent subsidiary carinule that extends from the TFC around the mid ocellus (Fig. 124c) (12).

13–14. Subgenal area. Three genera, *Trichrysis*, *Chrysidea* (13), and *Exochrysis*, have a subgenal area enclosed by the genal carina dorsally and a second carina ventrally. This feature appears to have evolved independently twice in the Chrysidini, as *Exochrysis* is quite divergent from the other two, and the subgenal area appears like a deep fovea (14).

15–16. Pronotal depression. Most genera have a well developed lateral pronotal depression, which may even be pit-like in a few instances. However, in *Chrysura* this depression is weakly indicated and evenly and densely punctate (15). In *Argochrysis* the pronotum bulges immediately above the depression (16).

17. Pronotal carina. A derived feature of *Ipsiura* is the presence of a sharp projecting carina along the lateral margin of the pronotum (Fig. 124b). A carina occurs in this position in some *Pleurochrysis*, *Praestochrysis*, and *Exochrysis*, but never as strongly developed as it is in *Ipsiura*.

18. Pronotal pits. Most Chrysidini have two or four deep pits on the anterior pronotal declivity. However, in *Neochrysis*, *Exochrysis*, and *Ipsiura* these pits are absent.

19. Scutellar shape. The scutellum is generally unmodified and is level with the scutum and metanotum in Chrysidini. However, in *Stilbichrysis* it is elevated and often spiculate when viewed in profile (Fig. 145).

20. Metanotal shape. The spoon-like metanotal projection (Fig. 148e) of *Stilbum* is a unique, and a immediately recognizable derived feature of the genus.

21–24. Mesopleural sculpturing. Based on comparisons with elampines and other chrysidids the primitive chrysidine mesopleuron is edentate, and has the scrobal sulcus either absent or oblique (as indicated by the position of the scrobal carina), as seen in *Primeuchroeus*. The majority of genera have the scrobal sulcus extending horizontally from the scrobe toward the epicnemium; a derived condition (21). The mesopleuron may be dentate, with two large lobes or teeth located on the lower half of the mesopleuron, as in *Brugmoia*, *Spintharina*, and *Gaullea* (22), or one tooth above the scrobe and three below the scrobal sulcus, as in *Odontochrydium* (23). In *Stilbum* the mesopleuron is flat and partly impunctate above the scrobal sulcus, with a large

truncate lobe above the scrobe and four teeth or lobes below the sulcus (24). In *Spinolia* the mesopleuron has a U-shaped carina-rimmed projection below the scrobal sulcus (25).

26. Metapleural projection. All Chrysidini have a projecting transpleural carina extending across the dorsal margin of the metapleuron. *Exochrysis* have this carina ending in a digitate lobe that extends away from the propodeal angle just before the metapleural+propodeal suture.

27–30. Fore wing venation. Chrysidini have the most complete wing venation in the Chrysididae. The fore wing typically has Rs long, evenly curved and nearly reaching the costal margin, and the discoidal cell completely delimited by sclerotized veins. Several derived conditions occur in this tribe. Rs is about as long as M in *Gaullea* (Fig. 121), leaving the marginal cell more than half open (27). In *Spintharina* and *Primeuchroeus* Rs is angulate or bent medially (28), at least if the remnant of Rs (in many *Primeuchroeus*) is followed to the wing margin. Rs is sinuous and bends away from the wing margin in the *Neochrysis* line (Fig. 119) (29). Finally, in the *Brugmoia* line the marginal cell is broadly open apically (Fig. 95), and if Rs is traced to the wing margin it bends away from the costal margin, ending below the wing apex (30).

31. Hind femoral pit. A unique derived feature of the *Neochrysis* line is the presence of a small pit near the base of the hind femur on the ventral surface.

32–33. Propodeal enclosure. The enclosure on the posterior face of the propodeum is coarsely punctate, and delimited by four moderate-sized, cross-ridged areolae. This is the typical condition in *Chrysis* and the majority of Chrysidini. Two derived forms occur; in the *Ceratochrysis* line the propodeal enclosure has fine discrete punctures (32), in the *Neochrysis* line the enclosure has large punctures and is surrounded by four large, smooth foveae (33).

34. Propodeal medial projection. The propodeum is typically evenly rounded, but in *Exochrysis* it has an erect, medial tooth or projection.

35–36. Propodeal angle. In the primitive condition, the propodeal angle is broadly triangular. However, in *Spintharina* and *Spintharosoma* (Figs 142j and 144e) the angle is apically truncate and deeply notched posteriorly, making it appear flag-like (35). In the *Neochrysis* line the propodeal angle is broadly triangular with a posteromedial lobe (36).

37–44. T-III dentition. Although the majority of Chrysidini have T-III apically dentate this is probably the derived condition in the tribe (37). The most primitive genera (those with the fewest derived features), *Primeuchroeus* and *Chrysura* have T-III usually edentate. There are various modifications of T-III, most involving the dentition. In the Eastern Hemisphere genera one line has an even number of teeth, 2, 4, 6, 8 (38). The other line has an odd number, 1, 3, 5, or a posteromedial emargination (39). Within this second group two genera have five teeth (*Praestochrysis* and *Pentachrysis*) (40), and three have three teeth (*Allochrysis*, *Trichrysis*, and *Odontochrydium*).

The medial tooth of *Allochrysis* is unusually rounded and not sharp (41). *Spinolia* and *Brugmoia*, and in the Americas *Gaullea*, have the apical margin of T-III multidentate, with more than 10 teeth (42). In *Chrysurrissa* T-III is laterally angulate and appears subtruncate in posterior view (43). Because T-III is dentate in the closest relatives of *Stilbichrysis* and *Pseudospinolia* we have concluded that the dentition has been secondarily lost in these (44).

45. T-III carinae. Many *Chrysis* and members of other genera have a medial welt or low carina on T-II. However, in *Pentachrysis* T-III is medially and longitudinally carinate (Fig. 130d).

46–47. T-III pit row. Another derived feature of chrysidines is the presence of a pit row. In a secondary derivation the pit row is nearly obsolescent in *Neochrysis* (Fig. 125), indicated by a few small pits or impunctate stripe, and there is no prepit swelling (46). Traces of a pit row are still discernable, particularly when the tergum is viewed from beneath. The opposite extreme occurs in *Gaullea* where the prepit swelling is strongly produced and ridge-like (Fig. 121), and the pit row is deeply impressed (47).

48. S-IV exposed. In most males S-IV is exposed as a brown fringe or rim beyond S-III. It is largely exposed and green metallic in *Ipsiura* (Fig. 124d). We consider this a derived condition because it occurs nowhere else in the tribe.

49–50. Genital capsule. The gonocoxa is generally simple apically in chrysidines. Two derived conditions are: gonocoxa with a discrete articulated gonostyle, as in the *Ceratochrysis* line (49), or gonocoxa apically bilobate, as in *Chrysidea* (50).

51–53. White maculation. White coloration is uncommon in the Chrysididae but occurs in a few genera: *Cleptidea*, *Allocoelia*, *Parnopes*, *Cephaloparnops*, *Brugmoia*, *Argochrysis*, and the *Spintharina* and *Neochrysis* lines. We are treating the presence and position of white markings as derived. In the *Neochrysis* line there may be a white patch basolaterally on T-III (51). In *Brugmoia* the entire rim of T-III, leg joints, tegulae, and mandibles may be white-marked (52). Finally, in *Argochrysis*, *Spintharina*, and *Spintharosoma* there are white markings similar to those in *Brugmoia*, but in addition the basal flagellomeres may be white-marked (53).

## KEY TO GENERA OF CHRYSIDINI OF THE EASTERN HEMISPHERE

- 
1. Scrobal sulcus absent (Fig. 135), T-III apex various but without 4 or 5 teeth.

*Primeuchroeus* Linsenmaier, p.535

Scrobal sulcus present and bisecting mesopleuron horizontally (rare exceptions in species with 4 or 5 teeth on T- III apex) 2

---

2. Rs with apex of sclerotized part at least 3 MOD from anterior wing margin (Fig. 95), discoidal cell complete and its veins well sclerotized; T-III apical rim not tridentate 3  
Rs with apex of sclerotized part at most 2 MOD from anterior wing margin (Fig. 141); or if not, discoidal cell incomplete with one or both of its outer veins not entirely sclerotized; or (rare exception) T-III rim tridentate 7


---
3. T-III rim with 4 or more large teeth, mesopleuron bi- or tridentate 4  
T-III rim evenly rounded; irregularly crenulate, or with a lateral tooth, in which case mesopleuron projects roundly outward 5


---
4. Metanotum with a large cup-like posterior projection; head unusually long and narrow (Fig. 148a); mesopleuron with 3 teeth or knobs below scrobal sulcus (Fig. 147) *Stilbum* Spinola, p.564  
Metanotum at most with a small bilobed projection; head as broad as long or broader; mesopleuron with 2 sharp teeth below scrobal sulcus (Fig. 95) *Brugmoia* Radoszkowski, p.292


---
5. Mesopleuron with 2 teeth below scrobal sulcus; face with a U- shaped carina around mid ocellus but no TFC (Fig. 146a) *Stilbichrysis* Bischoff, p.561  
Mesopleuron without teeth below scrobal sulcus but sometimes with a rounded projection; face without carinae or with TFC which may be extended around mid ocellus 6


---
6. Mesopleuron with a U-shaped, carina-rimmed, outward projection below scrobal sulcus (Fig. 139); face covered with coarse contiguous punctation; no TFC *Spinolia* Dahlbom, p.548  
Mesopleuron with vague, V-shaped enclosure below scrobal sulcus (Fig. 137); face with discrete polished medial stripe or medial zone of cross-ridging; TFC usually present *Pseudospinolia* Linsenmaier, p.544


---
7. Propodeal angle broadly lobate subapically, and deeply notched basally (Figs 142i-j and 144e); T-III rim apically edentate or medially notched 8  
Propodeal angle usually triangular; if strongly narrowed basally, T-III rim with 4 or more apical teeth; T-III rim otherwise various 9


---
8. T-III apical rim notched between 2 submedian teeth (Fig. 144d); mesopleuron edentate; Rs broadly and evenly curved (Fig. 143) *Spintharosoma* Zimmermann, p.559  
T-III apical rim evenly rounded or sometimes drawn out into a blunt point;



mesopleuron usually with 2 or 3 teeth below narrow scrobal sulcus; Rs not evenly curved (Fig. 141)

*Spintharina* Semenov, p.553

- 
9. T-III rim with 3 teeth, lateral one sometimes only an angle, median one sharp or a narrow definitive lobe (Figs 92d and 128b) 10  
 T-III rim with 0–2, or 4 or more teeth, sometimes broadly rounded medially; if with 3 distinct teeth (Madagascan species), then frons with 2 transverse carinae separated by a reflective area. 2
- 
10. Mesopleuron strongly dentate below scrobal sulcus (Fig. 127); scutum expanded laterally to cover one-half or more of tegula; T-III teeth crowded toward middle of broad apical rim (Fig. 128b) *Odontochrydium* Brauns, p.517  
 Mesopleuron edentate; scutum not unusually expanded laterally; T-III teeth not crowded toward middle of apical rim 11
- 
11. T-III medial tooth apically rounded; face rather flat; pronotum without a sub-lateral carina; Rs with apex of sclerotized part 1.5–3.0 MOD from anterior wing margin (Fig. 91) (several rare Asian species) *Allochrysis* Semenov, p.286  
 T-III medial tooth sharp; face deeply concave beneath bulging brow; pronotum often with a partial or complete sublateral carina; Rs with apex of sclerotized part at or near anterior wing margin (Fig. 149) *Trichrysis* Lichtenstein, p.568
- 
12. T-III apical rim with 5 distinct teeth (Figs 130d and 134d) 13  
 T-III apical rim with 0–4, or 6 or more teeth; if 5 teeth, middle one extremely small 14
- 
13. F-I 5 or more times as long as broad; clypeus broader than LID; sides of face under eyes in front view parallel-sided or diverging below (Fig. 130a)  
*Pentachrysis* Lichtenstein, p.579  
 F-I less than 3x as long as broad; clypeus not broader than LID; sides of face under eyes in front view converging below (Fig. 134a)  
*Praestochrysis* Linsenmaier, p.528
- 
14. Face unusually flat, covered with even, dense, coarse punctures, no medial cross-ridging but sometimes with a little microreticulation; no TFC or appressed silvery pubescence (Fig. 116a); T-III apical rim edentate (Fig. 116b)  
*Chrysuria* Dahlbom, p.480  
 Face often with hollowed scapal basin, often with polished or cross-ridged median area, often with TFC and/or appressed silvery pubescence; T-III apical rim usually dentate or medially emarginate, less commonly evenly rounded and edentate 15
-

15. Gena with 2 carinae extending from mandible base creating a subgenal triangle; T-III rim broadly rounded between apicolateral angles (Fig. 102*d*) (rare Madagascan species tridentate); frons usually with 2 transverse carinae separated by a reflective area (Fig. 102*a*) *Chrysidea* Bischoff, p.310  
 Gena with 1 carina or rarely none; T-III rim various; frons usually with a single TFC or none *Chrysis* Linnaeus, p.315

## KEY TO GENERA OF CHRYSIDINI OF THE WESTERN HEMISPHERE

1. Mesopleuron not divided horizontally by scrobal sulcus; sclerotized part of fore wing Rs ending at least 1.5 MOD from anterior wing margin (Fig. 123) 2  
 Mesopleuron divided horizontally by scrobal sulcus; or fore wing Rs ending close to anterior wing margin 6
- 
2. T-III apical rim whitish with 6 or more teeth (Fig. 122*d*); metanotal apex broadly projecting backward (Fig. 122*b*); fore wing discoidal cell absent (Fig. 121) (one Argentinean species) *Gaullea* Buysson, p.503  
 T-III apical rim not whitish except sometimes as a lateral spot; other characters various 3
- 
3. Pronotum with sharp, straight, protruding, sublateral carina (Fig. 124*b*); male S-IV exerted and relatively large (Fig. 124*d*); face with TFC extended backward to enclose mid ocellus (Fig. 124*c*) *Ipsiura* Linsenmaier, p.505  
 Pronotal carina absent or punctate and irregular, not protruding; other characters various 4
- 
4. Propodeum with a medial, upward-directed tooth; subgenal area discrete and bounded by carinae; fore wing discoidal cell complete (Fig. 119); dorsal metapleural lobe digitate and protruding away from propodeal angle *Exochrysis* Bohart, p.500  
 Propodeum without a medial propodeal tooth, or if with one (very small species); fore wing discoidal cell incomplete and subgenal area not defined; dorsal metapleural tooth triangular and parallel with propodeal angle 5
- 
5. T-III pit row absent or only indicated by very small pits, little or no prepit swelling (Figs 125 and 126*b*); pronotal anterior declivity usually without submedial pits or these indistinguishable from nearby punctures *Neochrysis* Linsenmaier, p.511

T-III pit row plainly indicated by a depression, at least some pits large and deep, prepit swelling usually present; pronotal anterior declivity with 2 deep submedial pits

*Pleurochrysis* Bohart, p.522

- 
6. T-III apical rim evenly rounded, without distinct teeth; fore wing Rs with sclerotized part ending more than 2 MOD from anterior wing margin (rare species).

*Pseudospinolia* Linsenmaier, p.544

T-III apical rim dentate; and/or fore wing Rs with sclerotized part ending less than 2 MOD from anterior wing margin, sometimes ending at wing margin 7

- 
7. T-III apical rim with 4-6 teeth or angles (one species with 4 weak lobes) (Fig. 106*d-i*)

*Chrysis* Linnaeus, p.315

T-III apical rim with 0-3 teeth or angles 8

- 
8. T-III apical rim with a medial notch and a lateral angle just beyond pit row (Fig. 118*b*); TFC absent or only slightly indicated (Fig. 118*a*)

*Chrysurissa* Bohart, p.498

T-III apical rim, if notched, without a lateral angle; TFC various 9

- 
9. T-III apical rim edentate or rarely with a weak lateral angle (Fig. 116*b*); face unusually flat and completely granulate-punctate without fine median cross-ridging; no TFC.

*Chrysura* Dahlbom, p.480

T-III apical rim dentate or notched medially; or if not, face with median cross-ridging and/or TFC present 10

- 
10. Scapal basin with pit in a sublateral depression some distance above antennal socket (Fig. 98*a*), sometimes weakly indicated in small species with incomplete discoidal cell; T-III apical rim often tridentate (Fig. 98*b*)

*Caenochrysis* Kimsey and Bohart, p.297

Scapal basin without an unusual depression or pit; discoidal cell complete; T-III apical rim various but not tridentate 11

- 
11. Tibiae and often tegula and/or T-III partly whitish (Fig. 94*d*); or metanotum sharply angulate or somewhat projecting backward in profile; vertex without 4 smooth swellings (Fig. 94*a, b*).

*Argochrysis* Kimsey and Bohart, p.288

Tibiae, tegula, and T-III not whitish; metanotum rounded in lateral view; vertex sometimes with 4 smooth swellings (Fig. 100*b*)

*Ceratochrysis* Cooper, p.306

*Allochrysis* Semenov (Figs 91 and 92)

*Allochrysis* Semenov 1954a:123. Type: *Chrysis pavlovskii* Semenov and Nikol'skaya 1954:123. Desig. herein.

**Generic diagnosis**

Face relatively flat, not deeply hollowed, no unusual depressions or cross-ridging on scapal basin (Fig. 92a, b), TFC broadly M-like or absent; F-I longer than pedicel or F-II+III; malar space 1.5–2.0 MOD; subantennal space 1-2 MOD; no subgenal area; midocellus unridged; hind ocelli 2.0–2.5 diameters apart; fore wing discoidal cell outer veins sometimes faint; metanotum simple; mesopleuron with well-defined episternal and scrobal sulci; propodeal angle sharp and incurved behind; T-I–II posterolateral corners blunt; T-III apex narrow, with lateral corners or teeth and a medial apically rounded lobe (Fig. 92d, e); S-II spots large, covering anterior half of sternum, practically fused medially. Male terminalia (based on limited material, Fig. 92c, f): S-VIII broadly truncate distally, gonocoxa simple and apically setose, digitus shorter than cuspis, aedeagus tapering apically to a point.

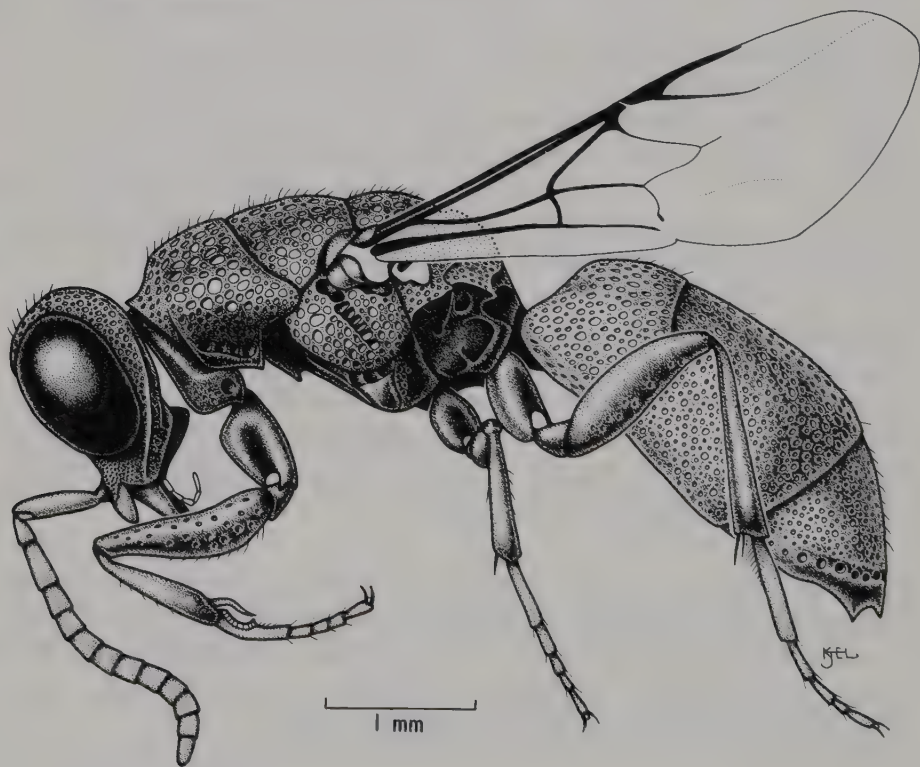


Fig. 91. *Allochrysis ismaeli*, female.



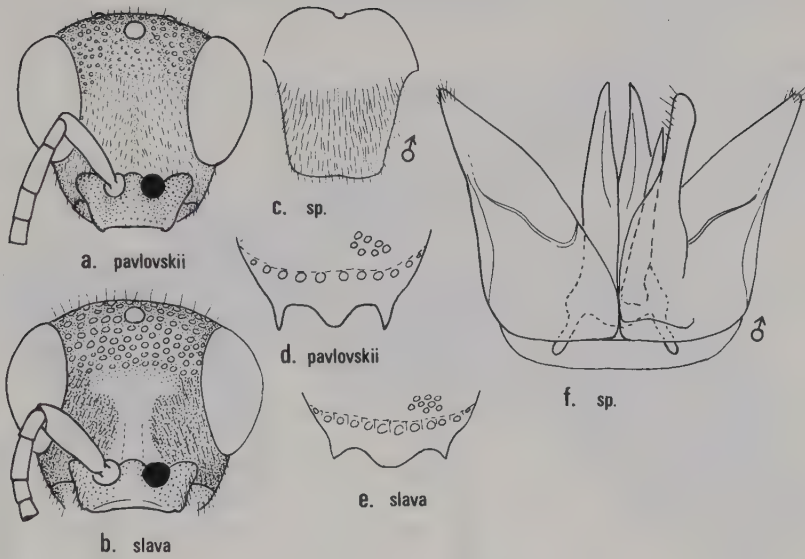


Fig. 92. *Allochrysis*. (a), (b) face; (c) S-VIII; (d), (e) T-III, dorsal; and (f) genital capsule, volsella omitted from left side, ventral. Female, except as indicated.

## Hosts

Unknown.

## Distribution

These species are found in southern USSR, Iran, Pakistan, and Turkey.

## Discussion

We have been able to see a few specimens of each of the six known species. The form of the T-III apex with its acute lateral teeth and lobulate middle projection (Fig. 92d) is unusual, and only in *Odontobrydium* is T-III similar. However, the single species of *Odontobrydium* is more robust, has the subantennal space quite long, scapal basin microridged, mid ocellus lidded, and apicolateral corners of T-I-II sharp. For discussion of differences from other genera with somewhat similar T-III see *Trichbrysis*, p.568.

*Allochrysis* is known from so few specimens that it is difficult to distinguish between species characters and normal variation. All the species have the tarsi light reddish. In addition, *pavlovskii*, *ear*, *ismaeli*, and *laetula* have the flagellum reddish, and the pit row is weakly impressed. However, in *slava* and *paria* the flagellum is dark and the pit row is well developed.

The terminalia of a single unidentified male is the only one available to us (Fig. 92*f*). S-VIII is remarkably stout, the only unusual feature (Fig. 92*c*).

### Checklist of *Allochrysis*

---

*ear* (Semenov). Palaearctic: s USSR.

*ear* (Semenov) 1910:219. (*Chrysis*). Holotype female; Kazakh SSR: Tshiili, Syr-Daria (LENINGRAD).\*

*ismaeli* (Semenov). Palaearctic: s USSR.

*ismaeli* (Semenov) 1967:161. (*Chrysis*). Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*laetula* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*laetula* (Semenov and Nikol'skaya) 1954:124. (*Chrysis*). Holotype male; Tadzhik SSR: Dzhilikul (LENINGRAD).\*

*paria* Bingham. Palaearctic: Pakistan.

*paria* (Bingham) 1903:455. (*Chrysis*). Holotype male; Pakistan: Baluchistan, Quetta (LONDON).\*

*sara* (Nurse) 1904:20. (*Chrysis*). Holotype female; Pakistan: Baluchistan, Quetta (LONDON). N. synonymy.\*

*pavlovskii* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*pavlovskii* (Semenov and Nikol'skaya) 1954:123. (*Chrysis*). Holotype male; Tadzhik SSR: Dzhilikul (LENINGRAD).\*

*slava* (Semenov). Palaearctic: s USSR.

*slava* (Semenov) 1967:158. (*Chrysis*). Holotype female; Kazakh SSR: Baigakum (LENINGRAD).\*

---

### *Argochrysis* Kimsey and Bohart (Figs 93 and 94)

*Argochrysis* Kimsey and Bohart 1981:78. Type: *Chrysis mesillae* Cockerell 1894a:125. Orig. desig.

### Generic diagnosis

Body almost always with white markings on leg joints (Fig. 94*d*), commonly also on flagellomeres (male), tegula, tarsi, and postpit area of T-III; scapal basin shallow, all or partly covered with silvery appressed setae, medial area microridged, at least in female; F-I usually longer than F-II (Fig. 94*a, b*); mandible with single large subapical tooth; malar space 0.5–2.0 MOD; subantennal space 1.0–2.5 MOD; genal carina close to eye (0.25–0.75 MOD), no defined subgenal area; TFC usually present, biconvex or reverse U-shaped; mid ocellar area sometimes defined, mid ocellus not lidded;

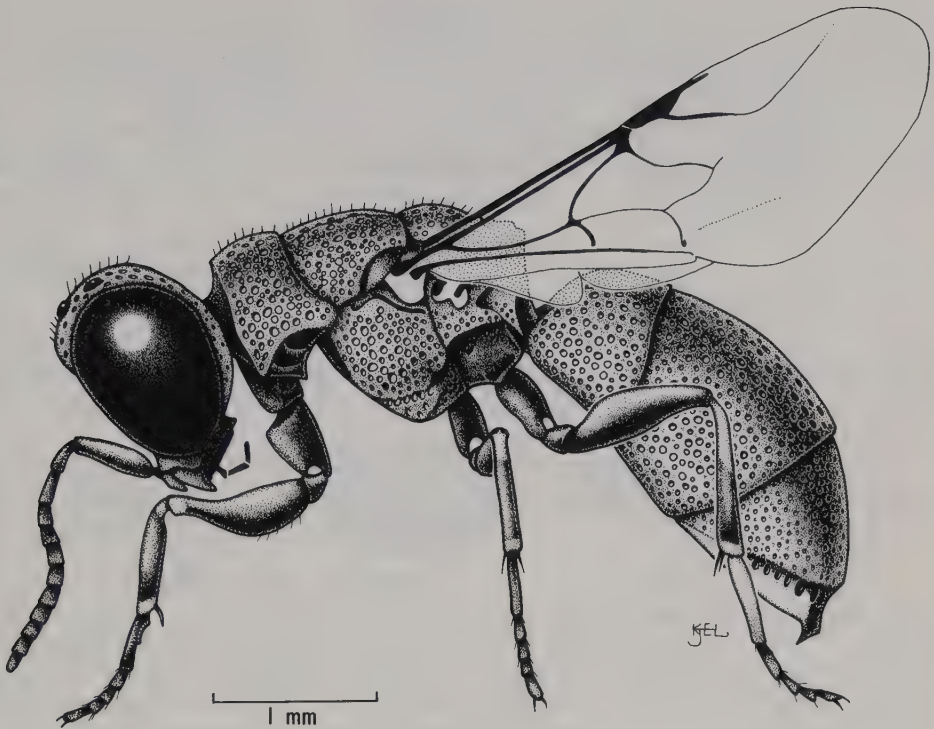


Fig. 93. *Argochrysis mesillae*, female.

pronotum shorter than scutellum, medial sulcus weak, lateral depression usually well developed; metanotum rounded, slightly angled, or broadly projecting; mesopleuron simple, with scrobal sulcus, episternal sulcus rarely evident, some with verticulus and trace of omaulus; propodeal angle rather slender, straight or incurved posteriorly; T-I broad, weakly indented anteromedially; T-II obtuse posterolaterally; T-III not depressed before pit row, which is well developed, apical margin entire or medially emarginate (sometimes medially bilobed) (Fig. 94e-g); S-II spots contiguous or narrowly separated, often large. Male terminalia (Fig. 94c, b): S-VIII subtriangular to quadrangular, gonocoxa slender and tapering in apical half, cuspis usually broad, aedeagus slender and tapering evenly toward apex.

### Hosts

The only hosts recorded for this genus are ground-nesting Sphecidae in the genus *Ammophila*. *Argochrysis armilla* has been reared from nests of *Ammophila pruinosa* Cresson and *marshi* Menke, and *mesillae* from *Am. californica* Menke (Bohart and MacLaughlin 1979), *breviceps* F. Smith, and *femurrubra* W. Fox (Krombein 1979).

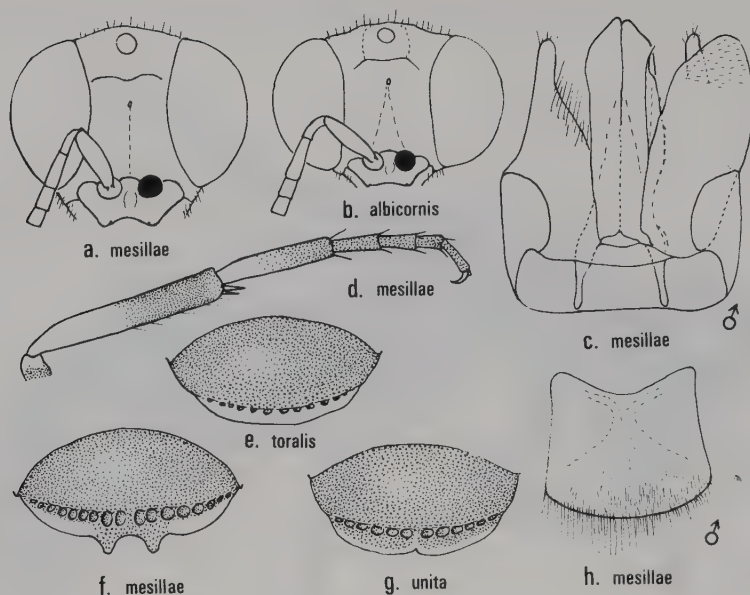


Fig. 94. *Argochrysis*. (a), (b) face; (c) genital capsule, ventral, volsella omitted on right side; (d) hind tibia and tarsus, outer surface; (e)–(g) T-III; and (h) S-VIII. Female, except as indicated.

## Distribution

*Argochrysis* occurs in the Nearctic Region west of the 100th meridian, with the majority of species in the south-western United States, particularly in California and Arizona.

## Discussion

Types of all the 15 known species have been studied. The white markings together with the simple or bilobed T-III apex distinguish *Argochrysis* from all other New World genera. *Ceratochrysis* may be related and some of them resemble *Argochrysis litura*, the only species without distinct white markings. However, *litura* has the metanotum rather sharply angled in contrast to *Ceratochrysis*. A broadly, but even more sharply, projecting metanotum is found in *unita*, *bians*, *excelsior*, and *toralis*. Other structural peculiarities are: T-III apex entire or nearly so in *lassenae*, *litura*, and *unita*; apex with two large submedial lobes in *trochilus* and *mesillae*; apex deeply incised in *bians*. Subocular swellings are found in *decoris*. The pronotal dorsum has a sharply rounded forward edge in *unita* and *bians*. Four species have no TFC: *alboris*, *decoris*, *toralis*, and *viroris*. Many species are extensively reddish, especially in females. An unusual situation occurs in *armilla*; females are always partly or mostly reddish. Males of some populations are basically green, in other populations they are at least partly red. White



markings on F-I, and following, are found in a number of males. However, females of *mesillae* and *trochilus* may also have whitish markings on F-I.

*Argochrysis* have been compared with *Spintharina* and *Spintharosoma*, both Old World genera, at least some of which have white markings. These are separated at once by their deeply posteriorly emarginate propodeal angles. In addition, *Spintharosoma* has an unusually narrow marginal cell (Fig. 143). Bohart and Kimsey (1982) gave a key to species of *Argochrysis* with many illustrations.

### Checklist of *Argochrysis*

---

*albicornis* Bohart. Nearctic: sw USA.

*albicornis* Bohart 1982:189. Holotype male; USA: California, San Diego Co., Borrego Valley (DAVIS).\*

*alboris* Kimsey. Nearctic: nw USA (Wyoming to California).

*alboris* Kimsey 1982b:185. Holotype male; USA: California, Alpine Co., Lake Winnemucca (DAVIS).\*

*armilla* Bohart. Nearctic: w USA, nw Mexico.

*armilla* Bohart 1982:189. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS).\*

*decoris* Kimsey. Nearctic: sw USA, nw Mexico.

*decoris* Kimsey 1982b:186. Holotype male; USA: Arizona, Cochise Co., 16 mi e Douglas (DAVIS).\*

*excelsior* Bohart. Nearctic: sw USA, nw Mexico.

*excelsior* Bohart 1982:190. Holotype male; USA: Arizona, Cochise Co., Portal (DAVIS).\*

*hians* Bohart. Nearctic: sw USA (Arizona, New Mexico).

*hians* Bohart 1982:191. Holotype male; USA: New Mexico, Hidalgo Co., 7 mi se Rodeo (DAVIS).\*

*inornata* Bohart. Nearctic: w USA (California).

*inornata* Bohart 1982:192. Holotype male; USA: California, Lake Co., n fork Cache Creek on Hwy 20 (DAVIS).\*

*lassenae* Bohart. Nearctic: w USA (California).

*lassenae* Bohart 1982:193. Holotype female; USA: California, Lassen Co., Hallelujah Junction (DAVIS).\*

*litura* Bohart. Nearctic: w USA.

*litura* Bohart 1982:193. Holotype male; USA: California, Los Angeles Co., Tanbark Flat (DAVIS).\*

*mesillae* (Cockerell). Nearctic: w USA (California to Texas), n Mexico.

*mesillae* (Cockerell) 1894a:125. (*Chrysis*). Lectotype female (desig. Cresson 1928); USA: New Mexico, Las Cruces (PHILADELPHIA).\*

*bigeloviae* (Cockerell) 1897:401. (*Chrysis*). Holotype male; USA: New Mexico, Las Cruces (WASHINGTON).\*

*annulipes* (Mocsáry) 1911b:462. (*Chrysis*). Holotype male; USA: California (BUDAPEST).\*

*secutor* Bohart. Nearctic: sw USA.

*secutor* Bohart 1982:195. Holotype male; USA: California, Inyo Co., Surprise Canyon (DAVIS).\*

*toralis* Kimsey. Nearctic: sw USA (California, Arizona).

*toralis* Kimsey 1982b:187. Holotype male; USA: California, San Bernardino Co., Cronise Wash (DAVIS).\*

*trochilus* (Buysson). Nearctic: sw USA, n Mexico.

*trochilus* (Buysson) 1891:32. (*Chrysis*). Holotype female; Mexico (PARIS).\*

*unita* (Mocsáry). Nearctic: w USA (Colorado, Texas, New Mexico), n Mexico.

*unita* (Mocsáry) 1889:211. (*Chrysis*). Holotype female; Mexico (BUDAPEST).\*

*viroris* Kimsey. Nearctic: w USA, Mexico (Baja California).

*viroris* Kimsey 1982b:188. Holotype male; USA: California, Ventura Co., Sespe Canyon (DAVIS).\*

## *Brugmoia* Radoszkowski (Figs 2b, 95 and 96)

*Brugmoia* Radoszkowski 1877:27. Type: *Brugmoia pellucida* Radoszkowski 1877:27. Monobasic.

*Pseudochrysis* Semenov 1891b:444. Type *Pseudochrysis virgo* Semenov 1891b:441. (= *Chrysis singularis* Spinola 1838:452). Desig. by Richards 1935:158.

## Generic diagnosis

Face with TFC, usually with two branches extending dorsally toward mid ocellus (Fig. 96a, b); tongue long; malar space 1 MOD or longer; subantennal distance about 2 MOD or longer; mandibles slender, with subapical notch or small subapical tooth; F-I usually less than twice as long as broad; pronotal anterior declivity with four pits; mesopleuron with deep scrobal sulcus subtended by two large acute teeth, usually also with well-developed episternal sulcus; metanotum rounded; fore wing Rs long but bending slightly away from costal margin leaving marginal cell broadly open (Fig. 95); T-III usually with large prepit swelling, pits generally subequal to puncture size, apical rim usually with numerous irregular teeth (Fig. 95); female ovipositor segments unmodified. Male terminalia (Fig. 96b): S-VIII usually broadly rounded apically,

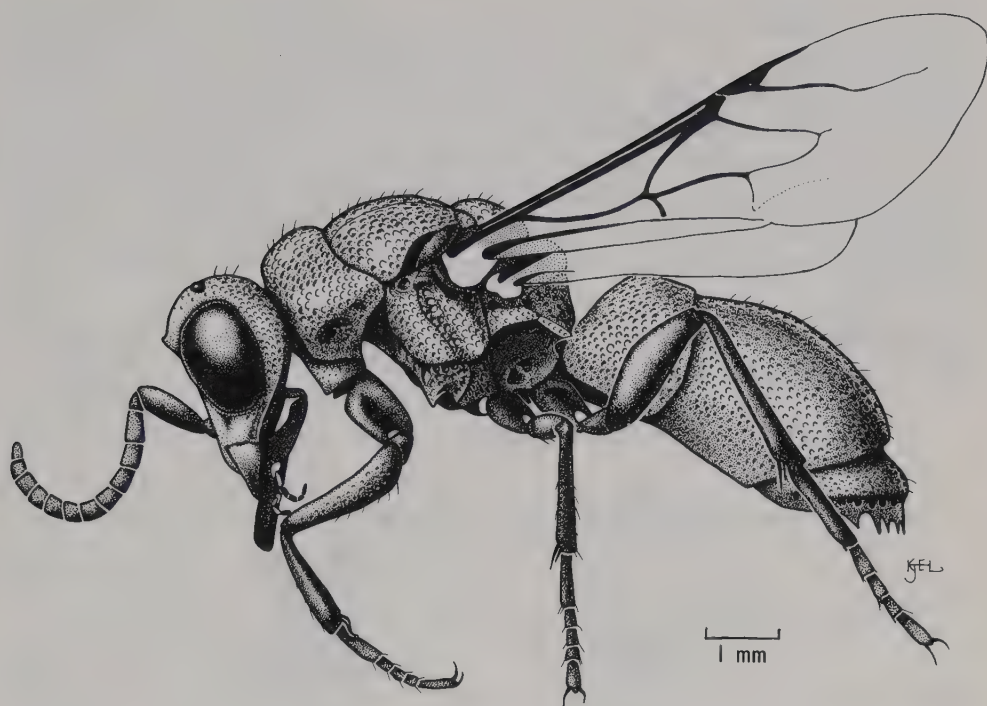


Fig. 95. *Brugmoia quadrata*, male.

gonocoxa short, often with strongly angulate inner margin, cuspis broad and often strongly lobate, digitus slender, aedeagus broadly rounded apically.

### Hosts

Unknown.

### Distribution

The majority of *Brugmoia* occur in the western Palaearctic Region, and three are Afrotropical.

### Discussion

Three related genera, *Brugmoia*, *Spinolia*, and *Pseudospinolia*, share the widely open fore wing marginal cell, together with a well-marked scrobal sulcus. Also, the long and somewhat bulging subantennal space creates a special look to the clypeus. *Brugmoia* and its relatives, but particularly the former, are often highly coloured. Females tend

to be brassy, coppery pink, or pinkish green. Males are green, blue, or purple. Female *torrida* are remarkably coloured, with a dark blue to green dorsum and brilliant coppery and green face and venter. Two other traits that frequently occur in this genus are the presence of dense long silky pubescence on the venter, and white or translucent yellowish colour on the mandibles, legs, and often on T-III apex. Along with the pale markings, the bispinose mesopleuron below the scrobal sulcus distinguishes *Brugmoia* from its two related genera. On the other hand, the multiple irregular teeth on the T-III apex are much like those on *Spinolia stchurovskyi*. Additionally, some *Brugmoia* (*singularis* and *zarudniana*) have only two apicomedial teeth and two lateral teeth on the T-III edge.

The commonly used name for this genus, *Euchroeus*, is a generic synonym of *Chrysis*, based on examination of the type species, *purpurata* Fabricius (Kimsey 1988b).

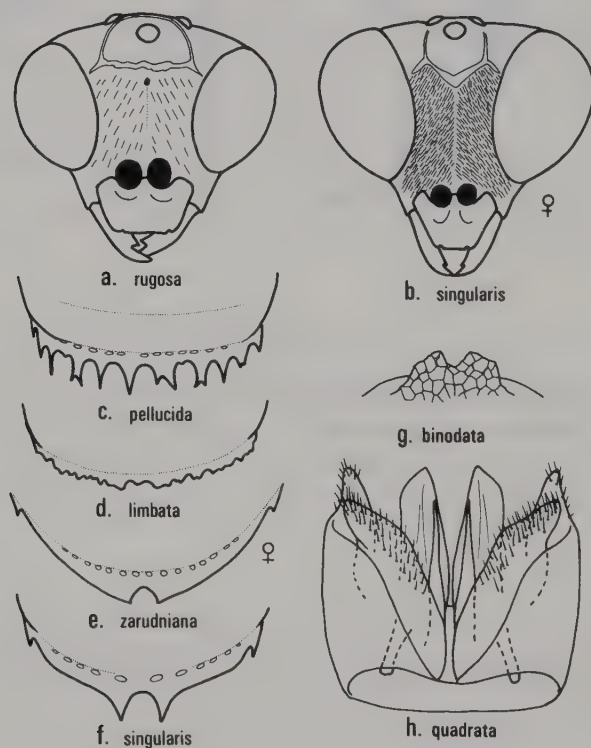


Fig. 96. *Brugmoia*. (a), (b) face;  $\zeta$ -(f) T-III, apical rim; (g) genital capsule, ventral; and (h) metanotum, dorsal.



## Checklist of *Brugmoia*

---

*astarte* (Semenov). Palaearctic: sw USSR (Armenia).

*astarte* (Semenov) 1912:185. (*Pseudochrysis*). Holotype male; Armenian SSR: Yerivan (Erivanj) (LENINGRAD).\*

*binodata* (Edney). Afrotropical: South Africa, Basutoland.

*binodata* (Edney) 1947:182. (*Euchroeus*). Holotype female; South Africa: Albany Dist., Resolution (CAPE TOWN).\*

*chrysidiformis* (Magretti). Palaearctic: sw Somalia.

*chrysidiformis* (Magretti) 1898:54. (*Euchroeus*). Holotype female; Somalia: Lugh (GENOA).

*eo*a (Semenov). Palaearctic: Iran, s USSR.

*eo*a (Semenov) 1912:186. (*Pseudochrysis*). Holotype female; se Iran (LENINGRAD).\*

*harmeri* (Mocsáry). Palaearctic: North Africa ?

*harmeri* (Mocsáry) 1914:72 (*Chrysis*). Holotype female; Africa (LONDON).\*

*hellenica* (Mocsáry). Palaearctic: Turkey, Greece.

*hellenica* (Mocsáry) 1913a:43. (*Chrysis*). Holotype female; Turkey: Attica (BUDAPEST).\*

*herculeana* (Semenov). Palaearctic: s USSR.

*herculeana* (Semenov) 1910:215. (*Pseudochrysis*). Holotype ?; Kazakh SSR: Syr-Daria, Baigakum (LENINGRAD).

*jordanica* (Linsenmaier). Palaearctic: Middle East.

*jordanica* (Linsenmaier) 1968:46. (*Euchroeus*). Holotype female; Jordan: Jericho (LUZERN).

*limbata* (Dahlbom). Palaearctic: s Europe, w USSR.

*limbata* (Dahlbom) 1854:368. (*Euchroeus*). Holotype female; USSR: 'Rossa meridionalis' (BERLIN).\*

*beckeri* (Tournier) 1878:309. (*Euchroeus*). Holotype female; Azerbaijan SSR: Baku (Lost ?).

*dusmeti* (Trautmann) 1926a:7. (*Euchroeus limbatus* var.) Holotype female; Spain: Castile (BERLIN).\*

*moricei* (Buysson). Palaearctic: North Africa, Middle East.

*moricei* (Buysson) (in André) 1896:717. (*Euchroeus*). Holotype female; Algeria: Biskra, (PARIS).\*

*jugurthina* (Zimmermann) 1950:311. (*Spintharis*). Holotype female; Algeria: Biskra (VIENNA).

*bytinskii* (Linsenmaier) 1969:374. (*Euchroeus moricei* ssp.). Holotype male; 'Palestine': Wadi Nafha (LUZERN).

*oculatissima* (Buysson). Palaearctic: North Africa, Middle East.

*oculatissima* (Buysson) 1898a:129. (*Chrysis*). Holotype female; Algeria: Biskra (PARIS) .\*

- israelica* (Linsenmaier) 1959b:71. (*Euchroeus oculatissimus* ssp.). Holotype female; Jordan: Beersheba (LUZERN).
- pellucida* Radozskowski. Palaearctic: Egypt, s USSR.  
*pellucida* Radozskowski 1877:26. Holotype male (not female); Kazakh SSR: Kizil-Kum Desert (MOSCOW).\*
- quadrata* (Shuckard). Palaearctic: Eurasia, North Africa.  
*quadrata* (Shuckard) 1836:167. (*Euchroeus*.) Holotype male; locality unknown (Lost ?).  
*doursi* (Gribodo) 1875:491. (*Euchroeus*.) Holotype female; France (GENOA).\*  
*egregia* (Buysson) 1887b:198. (*Euchroeus*.) Holotype male; Cyprus (PARIS ?).  
*irradians* (Semenov) 1910:213. (*Pseudochrysis purpuratus* var.). Syntype males, females; USSR: 'Transcaspia' (LENINGRAD).\*  
*orientis* (Semenov) 1910:214. (*Euchroeus purpuratus* var.). Lectotype male (desig. Kimsey herein); China (Dzhungaria chinens.): Hami (LENINGRAD).\*  
*pulchella* (Trautmann) 1926a:7. (*Euchroeus purpuratus* var.). Holotype male; Germany: Berlin, Umgebung (BERLIN).  
*smaragdina* (Trautmann) 1926a:7. (*Euchroeus purpuratus* var.). Holotype female; Turkey: Constantinople (BERLIN).  
*noskiewiczii* (Trautmann) 1927:85. (*Euchroeus purpuratus* var.). Holotype female; Algeria: Sidi bel Abbes (BERLIN).  
*mongolica* (Tsuneki) 1947:54. (*Euchroeus purpuratus* f.). Holotype female; Mongolia: Apaka (TSUKUBA). N. synonymy.\*  
*iberica* (Linsenmaier) 1959a:73. (*Euchroeus purpuratus* var.). Holotype female; Spain: Soria (LUZERN).  
*par* (Semenov) 1967:182. (*Spinolia*). Holotype male; Russian SFSR: Kyakhta (Transbaikalia) (LENINGRAD). N. synonymy.\*  
*turceyanus* (Linsenmaier) 1987:144. (*Euchroeus purpuratus* ssp.). Holotype female; Turkey: Konya (LUZERN). N. synonymy.
- robusta* (Mocsáry). Palaearctic: s USSR.  
*robusta* (Mocsáry) 1909:7. (*Chrysis*). Holotype male; Kazakh SSR: Syr-Daria (BUDAPEST).\*
- rugulae* Kimsey. Palaearctic: s USSR.  
*rugulosa* (Mocsáry) 1909:8. (*Chrysis*). Lectotype male (desig. Kimsey 1986c); Kazakh SSR: Mt. Karatau, near Djulek (BUDAPEST). Nec Abeille 1879.\*  
*rugulae* Kimsey. N. repl. name for *rugulosa* Mocsáry 1909b.
- rusalka* (Semenov). Palaearctic: s USSR.  
*rusalka* (Semenov) 1901:23. (*Pseudochrysis*). Holotype female; Turkmen SSR: Tedzhen (LENINGRAD).\*
- singularis* (Spinola). Palaearctic: North Africa, Iran, Middle East, s USSR.  
*singularis* (Spinola) 1838:452. (*Chrysis*). Holotype female; Egypt (TURIN).\*  
*virgo* (Semenov) 1891b:441. (*Pseudochrysis*). Holotype male; Turkmen SSR: Dort-kuju oasis,

Mary (Merv) (LENINGRAD). N. synonymy.\*

*torrida* (Mocsáry). Afrotropical: widespread.

*candens* (Dahlbom) 1854:371. (*Euchroeus*). Holotype female; South Africa: Cape Prov., 'Promontorium bonae spei' (TURIN). Nec Germar 1817.

*coerulans* (Dahlbom) 1854:372. (*Euchroeus*). Holotype male; South Africa: Cape Prov., 'Promontorium bonae spei' (TURIN). Nec Fabricius 1804.

*amabilis* (Mocsáry) (in Radoszkowski) 1889:36. (*Chrysis*). Holotype female; Senegal (KRAKOW ?).

*torrida* (Mocsáry) 1889:600. (*Chrysis*). Repl. name for *candens* Dahlbom 1854.

*artifrons* (Edney) 1947:181. (*Euchroeus*). Holotype female; Zimbabwe: Fort Victoria (PRETORIA-TM).\*

*vespera* (Semenov). Palaearctic: Iran.

*vespera* (Semenov) 1910:214. (*Pseudochrysis*). Lectotype male (desig. Kimsey 1986c); Iran: Chorassan (LENINGRAD).\*

*zarudniana* (Semenov). Palaearctic: Iran, s USSR.

*zarudniana* (Semenov) 1910:216. (*Pseudochrysis*). Holotype male; Iran: Chorassan, Atkul (LENINGRAD).\*

## *Caenochrysis* Kimsey and Bohart (Figs 9a, 97, and 98)

*Caenochrysis* Kimsey and Bohart 1981:76. Type: *Chrysis tridens* Lepeletier (in Lepeletier and Serville) 1825:495. Orig. desig. N. status.

*Lorochrysis* Kimsey and Bohart 1981:76. Type: *Chrysis doriae* Gribodo 1874:359. Orig. desig. N. synonymy.

## Generic diagnosis

Scapal basin deep, often with microridging, and with a fovea on each side between antennal base and middle of eye (Fig. 98a); F-I not more than 3 times as long as broad, usually shorter but at least as long as F-II; malar space 1–2 MOD; subantennal distance usually 1 MOD or less; subgenal area well defined; TFC distinct, convex, biconvex, or irregular, often with 2–4 posterior branches, inner pair often enclosing a mid ocellar area (Fig. 98e–g); mid ocellus not lidded; vertex often with distinct posteromedial depression; pronotum as long as or shorter than scutellum, medial sulcus weak, lateral depression well developed and often double; fore wing discoidal cell sometimes with outer veins faint, particularly in smaller species; metanotum usually raised or posteromedially projecting; mesopleuron with distinct scrobal and episternal sulci, omaulus, and verticulus; propodeal angle straight or incurved posteriorly; T-III pit row distinct, apex with 0–3 teeth (Fig. 98b, b–j); S-II spots usually submedial. Male

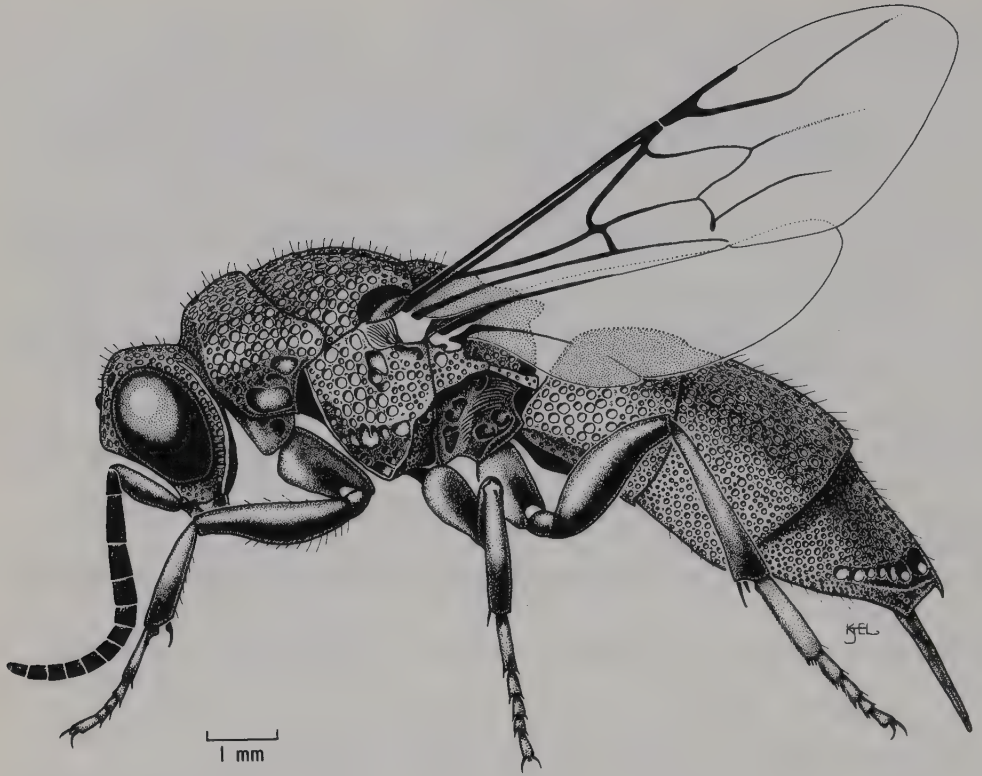


Fig. 97. *Caenochrysis tridens*, female.

terminalia (Figs 9a and 98c, d): S-VIII elongate triangular, gonocoxa with distinct gonostyle, cuspis and digitus relatively slender, aedeagus tapering gradually toward apex.

### Hosts

These chrysidids appear to specialize on members of the sphecid tribe Trypoxylonini, which build mud nests (Table 7).

### Distribution

*Caenochrysis* occurs in both North and South America.

### Discussion

The pair of facial foveae (Fig. 98a) is a unique character and with the rather distinctive male terminalia (Fig. 98d) distinguish *Caenochrysis* from such genera as *Chrysidea*,



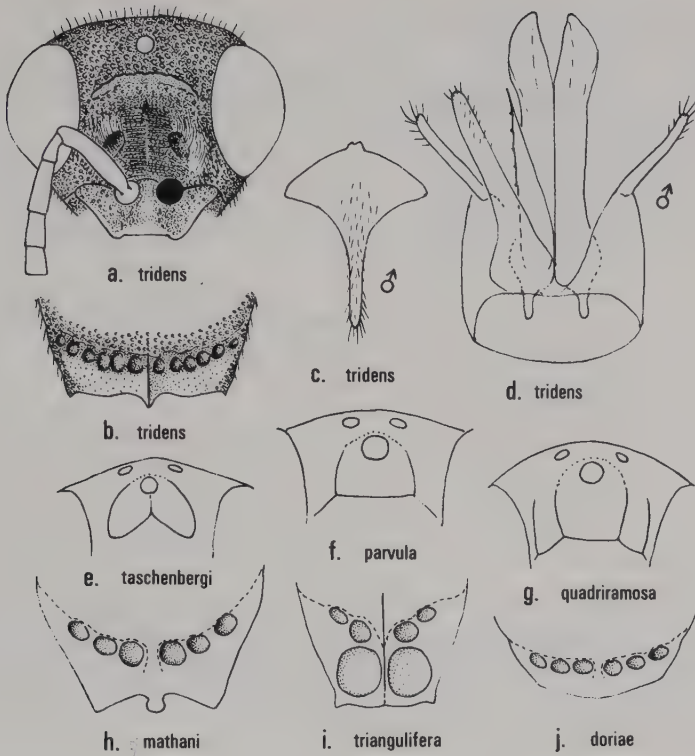


Fig. 98. *Caenochrysis*. (a) face; (b), (h)–(j) T-III apical rim; (c) S-VIII; (d) genital capsule, ventral, volsella omitted from right side; and (e)–(g) upper frons. Female, except as indicated.

*Trichrysis*, *Allochrysis*, and *Primeuchroeus*. All of these have some species with a tridentate T-III and/or incomplete fore wing discoidal cell.

Kimsey and Bohart (1981) treated *Trichrysis*, dividing the New World species into two subgenera, *Caenochrysis* and *Lorochrysis*. *Caenochrysis* had the discoidal cell complete and were mostly rather large (6–10 mm long). *Lorochrysis* had an incomplete discoidal cell and were mostly somewhat smaller (3–5 mm). However, there are several intermediate species and the subgeneric names do not seem to be worth maintaining. We are now elevating *Caenochrysis* to the full generic level. In one rather distinctive group the T-III apex has a medial tooth and distinct discoidal cell (*amazonica*, *carinata*, *dentaclypeata*, *deversor*, *mathani*, *nigropolita*, *parvula*, *tridens*). More than 40 species have been reported to have an incomplete discoidal cell. Those which we have recognized are *apposita*, *areolata*, *armata*, *crotonis*, *doriae*, *extera*, *hyalifoveata*, *paranaca*, *saussurei*, *saladoensis*, *silvestri*, *striatidorsa*, *triangulifera* (intermediate), and *trinidadensis*. Although most species have the metanotum raised or projecting posteriorly we have seen several species without an irregularity, including *doriae*, *puberula*, and *taschenbergi*.

Table 7. Sphecid wasp hosts of *Caenochrysis*

Chrysidid species	Host species	Reference
<i>deversor</i>	<i>Trypargilum</i> (Pack.)	Parker and Bohart (1966)
<i>doriae</i>	<i>T. collinum</i> (F. Sm.)	Krombein (1967)
	<i>T. tridentatum</i> (Pack.)	R. Coville (personal communication)
	<i>Trypoxylon bidentatum</i> W. Fox	Parker and Bohart (1966)
	<i>T. frigidum</i> F. Sm.	
<i>mucronata</i>	<i>Trypargilum tridentatum</i>	Krombein (1967)
		Parker (1967)
<i>sayi</i>	<i>T. collinum</i> (F. Sm.)	Krombein (1974)
	<i>T. clavatum</i> (Say)	
	<i>T. striatum</i> (Prov.)	
<i>tridens</i>	<i>T. politum</i> (Say)	Johnson (1974)

We have listed 51 species of which we have been able to study identified material (mostly types) of 35. Some 32 species and synonyms were described by Linsenmaier (1984). Many of the types are in his private collection and have not been available to us. One of his new species, *rossi*, from 'San Jose, Mindoro, Chile' is actually a *Trichrysis triacantha* from the island of Mindoro in the Philippines.

### Checklist of *Caenochrysis*

*amazonica* (Mocsáry). Neotropical: n South America.

*amazonica* (Mocsáry) 1889:337. (*Chrysis*). Holotype female; Brazil: Amazonas (BUDAPEST).\*

*apposita* (Linsenmaier). Neotropical: Argentina, Peru, Bolivia.

*apposita* (Linsenmaier) 1984:210. (*Trichrysis*). Holotype male; Argentina: Entre Rios (LUZERN).

*apuda* (Linsenmaier). Neotropical: Guyana, Surinam.

*apuda* (Linsenmaier) 1984:213. (*Trichrysis*). Holotype female; Guyana: Essequibo (LONDON).

*areolata* (Mocsáry). Nearctic: e USA, Neotropical: Mexico to El Salvador.

*areolata* (Mocsáry) 1911b:463. (*Chrysogona*). Holotype female; Mexico (BUDAPEST).\*

*armata* (Mocsáry). Neotropical: Venezuela to Argentina.

*armata* (Mocsáry) 1889:187. (*Chrysogona*). Lectotype female (desig. Bohart 1986a); Brazil: Santa Catarina, Blumenau (BUDAPEST).\*

*bonariensis* (Brèthes) 1903:271. (*Chrysis ritsemae* var.). Syntype females; Argentina: Buenos

Aires (BUENOS AIRES).\*

*elongata* (Brèthes) 1903:272. (*Chrysis ritsemae* var.). Holotype female; Brazil: New Friburg (BUENOS AIRES).\*

*schrottkyi* (Brèthes) 1903:270. (*Chrysis*). Holotype male; Argentina: Buenos Aires (Schrottky coll., lost ?).

*aptata* (Linsenmaier) 1984:212. (*Trichrysis*). Holotype female; Argentina: Entre Rios (LUZERN). N. synonymy.

*invisa* (Linsenmaier) 1984:210. (*Trichrysis*). Holotype female; Argentina: Tucumán (LUZERN). N. synonymy.

*austeritata* (Linsenmaier). Neotropical: Paraguay.

*austeritata* (Linsenmaier) 1984:212. (*Trichrysis*). Holotype male; Paraguay: Independencia (LUZERN).

*azteca* (Mocsáry). Neotropical: s Mexico to Costa Rica.

*azteca* (Mocsáry) 1889:209. (*Chrysis*). Holotype female; Mexico (BUDAPEST).\*

*bosci* (Buysson). Neotropical: Santo Domingo, Haiti.

*bosci* (Buysson) 1898b:562. (*Chrysis*). Holotype female; Santo Domingo (PARIS).\*

*brasiliana* (Guérin). Neotropical: Guyana to Argentina.

*brasiliana* (Guérin) 1842:146. (*Chrysis*). Holotype female; Brazil: Rio de Janeiro (GENOA).\*

*lunigera* (Dahlbom) 1854:194. (*Chrysis*). Holotype female; Guyana (COPENHAGEN).\*

*unicolor* (Brullé) 1846:42. (*Chrysis*). Holotype female; French Guiana: Cayenne (PARIS ?).  
Nec Dahlbom 1831.

*producta* (Brullé) 1846:44. (*Chrysis*). Holotype female; Brazil: Minas Gerais (PARIS ?).

*brullei* (Abeille) 1879:42. (*Chrysis*). Repl. name for *unicolor* (Brullé).

*centralis* (Mocsáry). Nearctic: Mexico.

*centralis* (Mocsáry) 1914:17. (*Chrysis*). Holotype female; Mexico: Tabasco, Teapa (LONDON).\*

*colombiana* (Linsenmaier). Neotropical: Colombia.

*colombiana* (Linsenmaier) 1984:221. (*Trichrysis*). Holotype female; Colombia: Meta, Cord. Macarena (LONDON).\*

*commilita* (Linsenmaier). Neotropical: Colombia, Brazil.

*commilita* (Linsenmaier) 1984:220. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*compacticeps* (Linsenmaier). Neotropical: Colombia.

*compacticeps* (Linsenmaier) 1984:213. (*Trichrysis*). Holotype female; Colombia: Caqueta, Yuruyaco, 73 km sw Florencia (LONDON).\*

*compensata* (Linsenmaier). Neotropical: Brazil.

*compensata* (Linsenmaier) 1984:210. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*complementa* (Linsenmaier). Neotropical: Brazil.

*complementa* (Linsenmaier) 1984:213. (*Trichbrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*crotonis* (Ducke). Neotropical: s Mexico to Paraguay and Brazil.

*crotonis* (Ducke) 1907:10. (*Chbrysis*). Syntype males, females; Brazil: Amazon (SAO PAULO, PARIS).\*

*linigera* (Linsenmaier) 1984:210. (*Trichbrysis*). Holotype female; Peru: Chanchamayo (LONDON). N. synonymy.\*

*anguiifera* (Linsenmaier) 1984:215. (*Trichbrysis*). Holotype male; Paraguay: Villarrica (LUZERN). N. synonymy.\*\*

*densasculpturata* (Linsenmaier). Neotropical: Argentina.

*densasculpturata* (Linsenmaier) 1984:206. (*Trichbrysis*). Holotype female; Argentina: Entre Rios (LUZERN).

*denticlypeata* (Linsenmaier). Neotropical: Brazil, Argentina.

*denticlypeata* (Linsenmaier) 1984:220. (*Trichbrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*deversor* (Bohart). Nearctic: w USA.

*deversor* (Bohart) 1966c:131. (*Trichbrysis*). Holotype male; USA: California, Davis (DAVIS).\*

*divergens* (Cresson). Nearctic: Cuba.

*divergens* (Cresson) 1865a:105. (*Chbrysis*). Holotype female; Cuba (HAVANA).

*doriae* (Gribodo). Nearctic and Neotropical (Canada to Panama, widespread).

*doriae* (Gribodo) 1874:359. (*Chbrysis*). Syntype females; 'America Boreali' (GENOA, COPENHAGEN).\*

*discreta* (Aaron) 1885:230. (*Chbrysis*). Holotype female; USA: North Carolina (PHILADELPHIA).\*

*striatella* (Norton) 1879:240. (*Chbrysis*). Lectotype female (desig. Cresson 1928); USA: Massachusetts (PHILADELPHIA).\*

*verticalis* (Patton) 1879:67. (*Chbrysis*). Holotype male; USA: Connecticut, Waterbury (lost?).

*ellampiformis* (Mocsáry) 1914:13. (*Chbrysidea*). Lectotype female (desig. Bohart herein); Costa Rica: San Jose (BUDAPEST). N. synonymy.\*

*yucatanensis* (Linsenmaier) 1984:205. (*Trichbrysis*). Holotype female; Mexico: Yucatan (LONDON). N. synonymy.\*

*extera* (Linsenmaier). Neotropical: Ecuador, Peru.

*extera* (Linsenmaier) 1984:223. (*Trichbrysis*). Holotype female; Ecuador: Napo (LUZERN).

*finitima* (Linsenmaier). Neotropical: Paraguay.

*finitima* (Linsenmaier) 1984:211. (*Trichbrysis*). Holotype male; Paraguay: Independencia (LUZERN).



*gibbosa* (Mocsáry). Neotropical (?): Mexico.

*gibbosa* (Mocsáry) 1889:334. (*Chrysis*). Holotype female; Mexico (BUDAPEST).\*

*hyalifoveolata* (Linsenmaier). Neotropical: Colombia to Argentina.

*hyalifoveolata* (Linsenmaier) 1984:215. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*imminenta* (Linsenmaier). Neotropical: Panama to Brazil and Peru.

*imminenta* (Linsenmaier) 1984:223. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*immixta* (Linsenmaier). Neotropical: Brazil.

*immixta* (Linsenmaier) 1984:211. (*Trichrysis*). Holotype male; Brazil: Bahia, Iguassu (LUZERN).

*inconspicua* (Linsenmaier). Neotropical: Argentina.

*inconspicua* (Linsenmaier) 1984:216. (*Trichrysis*). Holotype female; Argentina: Tucumán (LUZERN).

*limaca* (Linsenmaier). Neotropical: Peru.

*limaca* (Linsenmaier) 1984:203. (*Trichrysis*). Holotype female; Peru: Lima (LUZERN).

*mathani* (Ducke). Neotropical: Colombia, Peru, Ecuador, Bolivia.

*mutica* (Ducke) 1907 (1906):12. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Amazonas, Obidos (SAO PAULO).\*

*mathani* (Ducke) 1913:30. (*Chrysis*). Repl. name for *mutica* (Ducke).

*boliviana* (Mocsáry) 1914:113. (*Chrysidea*). Holotype female; Bolivia: Mapiri (BUDAPEST).\*

*mucronata* (Brullé). Neotropical: Mexico to Panama.

*mucronata* (Brullé) 1846:45. (*Chrysis*). Holotype female; Mexico: Veracruz (PARIS).\*

*selenia* (Costa) 1864:67. (*Chrysis*). Syntype; Mexico (NAPLES ?). N. synonymy.

*nigropolita* (Bischoff). Neotropical: Mexico to Argentina.

*nigropolita* (Bischoff) 1910:458. (*Trichrysis*). Holotype female; Ecuador: Palmar (BERLIN).\*

*meridionalis* (Linsenmaier) 1984:218. (*Trichrysis mucronata* ssp.). Holotype female; Brazil: Santa Catarina (LUZERN). N. synonymy.\*\*

*paraca* (Linsenmaier). Neotropical: Brazil.

*paraca* (Linsenmaier) 1984:211. (*Trichrysis*). Holotype female; Brazil: Pará (LUZERN).

*paranaca* (Linsenmaier). Neotropical: Venezuela to Brazil and Bolivia.

*paranaca* (Linsenmaier) 1984:206. (*Trichrysis*). Holotype female; Brazil: Parana (LUZERN).

*parvula* (Fabricius). Neotropical: Costa Rica to Argentina.

*parvula* (Fabricius) 1804:176. (*Chrysis*). Holotype female; South America (COPENHAGEN).\*

*truncatella* (Dahlbom) 1854:195. (*Chrysis*). Holotype female; Brazil (TURIN). N. synonymy.\*

- aliena* (Mocsáry) 1889:332. (*Chrysis*). Holotype female; Brazil: Santa Catarina, Blumenau (BUDAPEST). N. synonymy.\*
- ritsemae* (Mocsáry) 1889:338. (*Chrysis*). Holotype female; Surinam (LEIDEN). N. synonymy.\*
- barticensis* (Bischoff) 1910:458. (*Trichrysis ritsemae* var.). Syntype male, female; Guyana: Bartica (BERLIN). N. synonymy.\*
- reticulata* (Mocsáry) 1911b:470. (*Chrysis*). Holotype female; Brazil: Santa Catarina (BUDAPEST). N. synonymy.\*
- peruensis* (Mocsáry) 1914:14. (*Chrysidea*). Holotype female; Peru: Vilcanota (BUDAPEST). N. synonymy.\*
- chrysofacialis* (Linsenmaier) 1984:221. (*Trichrysis*). Holotype female; Brazil: Maranhao (LUZERN). N. synonymy.\*\*
- scypiphora* (Linsenmaier) 1984:223. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN). N. synonymy.
- turmalina* (Linsenmaier) 1984:221. (*Trichrysis*). Holotype female; Brazil: Bahia (LUZERN). N. synonymy.
- plaumanni* (Linsenmaier). Neotropical: Brazil.
- plaumanni* (Linsenmaier) 1984:216. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).
- puberula* (Spinola). Neotropical: Chile.
- puberula* (Spinola) 1851:407. (*Chrysis*). Holotype female; Chile: Central Provinces (PARIS).\*
- nasicylpeata* (Linsenmaier) 1984:205. (*Trichrysis*). Holotype male Chile: Coquimbo (SAN FRANCISCO). N. synonymy.\*
- quadriramosa* (Mocsáry). Neotropical: Peru to Argentina.
- quadriramosa* (Mocsáry) 1911b:464. (*Chrysogona*). Holotype female; Peru (BUDAPEST).\*
- rufitegulata* (Linsenmaier). Neotropical: Argentina.
- rufitegulata* (Linsenmaier) 1984:211. (*Trichrysis*). Holotype female; Argentina: Huerta Grande (MUNICH).
- saladoensis* (Linsenmaier). Neotropical: Argentina.
- saladoensis* (Linsenmaier) 1984:215. (*Trichrysis*). Holotype male; Argentina: Santiago del Estero, Rio Salado, 10 km ene Colonia Dora (LONDON).\*
- angustiradialis* (Linsenmaier) 1984:212. (*Trichrysis*). Holotype female; Argentina: Santiago del Estero, Rio Salado, 10 km. ene. Colonia Dora (LONDON). N. synonymy.\*
- saussurei* (Mocsáry). Neotropical: s Mexico to Argentina.
- saussurei* (Mocsáry) 1889:187. (*Chrysogona*). Lectotype female (desig. Bohart herein); Mexico: Cordoba (GENEVA).\*
- pseudaptata* (Linsenmaier) 1984:213. (*Trichrysis*). Holotype male; Argentina: Santiago del Estero, Rio Salado (LONDON). N. synonymy.\*
- richardsi* (Linsenmaier) 1984:215. (*Trichrysis*). Holotype female; Brazil: Mato Grosso (LONDON). N. synonymy.\*

*sayi* Bohart. Nearctic:

*carinata* (Say) 1828:82. (*Chrysis*). Type ?; USA: Indiana (Lost). Nec Block 1799.

*sayi* Bohart. N. repl. name for *carinata* Say 1828.

*sericalineata* (Linsenmaier). Neotropical: Brazil.

*sericalineata* (Linsenmaier) 1984:213. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*silvestrii* (Ducke). Neotropical: Venezuela to Brazil.

*silvestrii* (Ducke) 1904:32. (*Chrysogona*). Holotype female; Brazil: Para (BELEM).\*

*striatidorsa* (Linsenmaier). Neotropical: Ecuador and Venezuela to Argentina.

*striatidorsa* (Linsenmaier) 1984:206. (*Trichrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*taschenbergi* (Mocsáry). Neotropical: Bolivia and Peru to Argentina.

*taschenbergi* (Mocsáry) 1889:316. (*Chrysis*). Holotype male; Argentina: Mendoza (HALLE).

*iberingi* (Buysson) 1904:260. (*Chrysis*). Holotype female (not male); Brazil: São Paulo (SAO PAULO). N. synonymy.\*

*triangulifera* (Mocsáry). Neotropical: Colombia to Brazil and Bolivia.

*triangulifera* (Mocsáry) 1890:55. (*Chrysis*). Syntype female (desig. Bohart herein); Brazil: Piauí (BUDAPEST).\*

*tridens* (Lepelletier). Nearctic and Neotropical: s Canada to Costa Rica.

*tridens* (Lepelletier) (in Lepelletier and Serville) 1825:495. (*Pyria*). Holotype female; 'l'Amerique septentrionale' (Serville coll., lost?).

*truncata* (Guérin) 1842:146. (*Chrysis*). Syntype male, female; 'l'Amerique du Nord, a Georgetown' (GENOA). Nec Dahlbom 1831.\*

*mexicana* (Guérin) 1842:147. (*Chrysis*). Holotype female; Mexico: Tampico (GENOA).\*

*tridentata* (Dahlbom) 1845:13. (*Chrysis*). Holotype female; 'Carolina meridional' (LUND).\*

*olivieri* (Brullé) 1846:43. (*Chrysis*). Holotype female; 'Dardanelles' (in error) (PARIS ?).

*virens* (Cresson) 1865b:309. (*Chrysis*). Lectotype female; USA: 'Colorado Territory' (PHILADELPHIA). Nec Christ 1791.\*

*nugatrix* (Bingham) 1903:450. (*Chrysis*). Holotype female; India: Delhi (accidental intro. or erroneous record) (LONDON). N. synonymy.\*

*trinidadensis* (Linsenmaier). Neotropical: Trinidad, Colombia.

*trinidadensis* (Linsenmaier) 1984:210. (*Trichrysis*). Holotype male; Trinidad: Saint Augustine (LUZERN).\*\*

*vicina* (Linsenmaier). Neotropical: Paraguay.

*vicina* (Linsenmaier) 1984:210. (*Trichrysis*). Holotype female; Paraguay: Independencia (LUZERN).

*Ceratochrysis* Cooper (Figs 99 and 100)

*Ceratochrysis* Cooper 1952:140. Type: *Chrysis enhuycki* Cooper 1952:140. Orig. desig.



Fig. 99. *Ceratochrysis perpulchra*, female.

**Generic diagnosis**

Scapal basin with at least narrow medial strip of microridging (Fig. 100a); F-I longer than malar space and usually more than 3 times breadth, often quite long and slender; malar and subantennal spaces variable; subgenal area weak or absent; TFC nearly always present, broadly M-like when complete; vertex sometimes with two or four knob-like swellings (Fig. 100b); pronotum shorter than scutellum, metanotum evenly rounded; mesopleuron with well-developed scrobal and episternal sulci; T-III pit row usually deep, often with a prepit swelling in female, apical margin various: (Fig. 100d, e, f, i) rounded, medially indented, notched, or bidentate. Male terminalia (Fig. 100j,



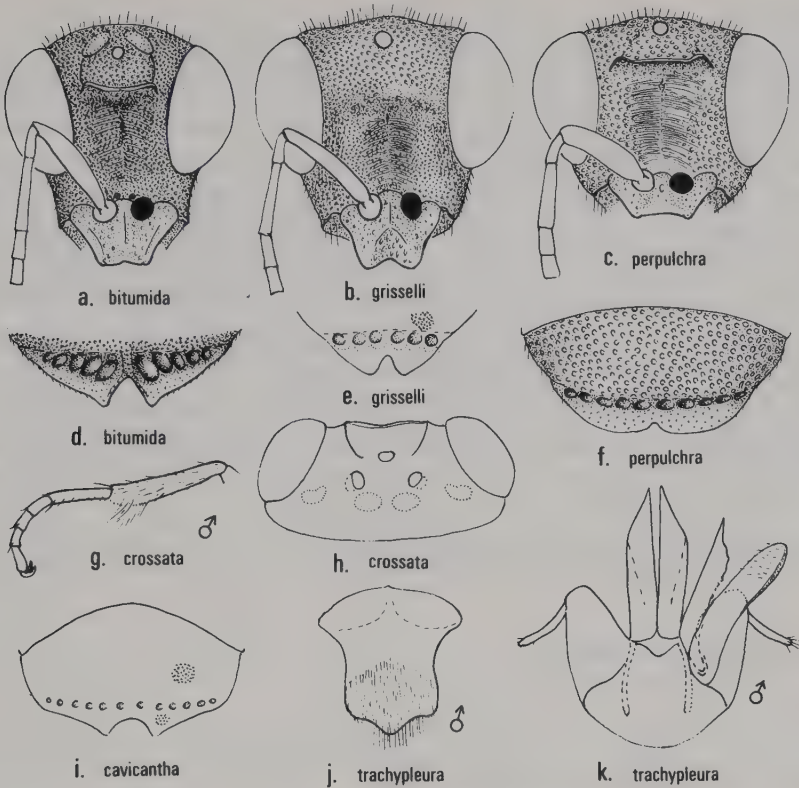


Fig. 100. *Ceratochrysis*. (a)–(c) face; (d)–(f), (i) T-III; (g) mid tibia and tarsus; (h) head, dorsal; (j) S-VIII; and (k) genital capsule, ventral, volsella omitted from right side. Female, except as indicated.

k): S-VIII broadly triangular or shield-like to rectangular, cuspis broad, gonocoxa with apical gonostyle, aedeagus stout, sometimes angled-out subapically.

## Hosts

A sphecid, *Ammophila aberti* Hald., was reported as the host of *trachypleura* (as *perpulchra*) (Hicks 1932), and the eumenids *Leptochilus republicanus* (D.T.) and *L. rufinodus* (Cress.) were given as hosts of *enbuycki* (Krombein 1959). Also, *parkeri* was reported from *Leptochilus tricolor* (Prov.) and *thysana* from *L. periallis* (Parker, pers. comm.). Bohart (1966a) gave *Trypargilum tridentatum* (Pack.) and *Pisonopsis birkmanni* Roh. as hosts of *antyga*.

## Distribution

*Ceratochrysis* is found in America north of Panama, with 24 of the 27 species occurring only west of the 97th meridian.

## Discussion

We have seen all of the types of the 27 listed species. There are a number of structural peculiarities in this group: vertex with knobs (two in *bitumida* (Fig. 100a), four in *crossata*, *enhuycki*, *faceta*, and *quadrituberculata*), apex of male hind tibia with a tassel (Fig. 100g) (*crossata*, *declinis*, *faceta*, *longiceps*, *nearctica*, and *thysana*), F-I in male with long ventral hairs (*longimala*), F-I unusually long and slender (5 times as long as broad or more, *bitumida*, *grisselli*, and *longiceps*), gena lobed at mandible base (*minata*), TFC absent (*gracilis*), pit row present but not indented (*cavicantha*), malar space 3 MOD or more (*bitumida*, *grisselli*, *longiceps*, and *longimala*), and male S-VIII trifold (*kansensis*).

The digitate gonocoxa distinguishes *Ceratochrysis* from all other New World genera except *Caenochrysis*, which has definite facial foveae. Distinctions from other New World genera are the combination of a simple or medially emarginate T-III apex, facial microridging below a distinct TFC (with rare exceptions), simple male flagellum (unlike New World *Chrysura*), metanotum broadly rounded (unlike *Argochrysis*), and legs not pale marked (unlike all but one *Argochrysis*).

The genus was revised by Bohart and Kimsey (1982), who presented illustrations for many of the species.

## Checklist of *Ceratochrysis*

---

*antya* Bohart. Nearctic: sw USA, n Mexico.

*antya* Bohart 1966a:115. Holotype female; USA: California, Los Angeles Co., Tanbark Flat, San Gabriel Mts. (DAVIS).\*

*auriflamma* Bohart. Nearctic: USA (New Mexico).

*auriflamma* Bohart 1982:169. Holotype male; USA: New Mexico, Las Cruces (WASHINGTON).\*

*bitumida* Bohart. Nearctic: sw USA (Arizona, New Mexico).

*bitumida* Bohart 1966a:116. Holotype female; USA: 7 mi se Rodeo (DAVIS).\*

*bradleyi* Bohart. Nearctic: sw USA (Arizona, California).

*bradleyi* Bohart 1982:169. Holotype male; USA: Arizona: Yuma (ITHACA).\*

*cavicantha* Bohart. Nearctic: sw USA (Arizona, California).

*cavicantha* Bohart 1966a:116. Holotype male; USA: California, Inyo Co., Surprise Canyon, Panamint Mts. (DAVIS).\*

*collega* Bohart. Nearctic: w USA.

*collega* Bohart 1982:170. Holotype male; USA: California, Davis (DAVIS).\*

*concava* Bohart. Nearctic: w USA, nw Mexico.

*concava* Bohart 1982:172. Holotype male; USA: California, Riverside Co., 10 mi e Whitewater (DAVIS).\*

*crossata* Bohart. Nearctic: w USA, Mexico (south to Puebla).

*crossata* Bohart 1966a:117. Holotype male; USA: California, Los Angeles Co., Tanbark Flat, San Gabriel Mts. (DAVIS).\*

*cyanosoma* (Mocsáry). Nearctic: w USA.

*cyanosoma* (Mocsáry) 1914:17. (*Chrysis*). Holotype female; USA: California (LONDON).\*

*declinis* Bohart. Nearctic: central and e Canada and USA.

*declinis* Bohart 1966a:119. Holotype male; USA: Michigan: Lapeer Co., Deerfield Township (LAWRENCE).\*

*enbuycki* (Cooper). Nearctic: USA (widespread), Mexico.

*enbuycki* (Cooper) 1952:140. (*Chrysis*). Holotype female; USA: New Jersey, Princeton (WASHINGTON).\*

*tuberella* Bohart 1966a:122. Holotype male; USA: California: Mono Co., Paradise Camp (DAVIS).\*

*faceta* (Aaron). Nearctic: sw USA, Mexico (Tamaulipas).

*faceta* (Aaron) 1885:229. (*Chrysis*). Holotype male; USA: 'Colorado' (PHILADELPHIA).\*

*fusilis* Bohart. Nearctic: w USA (Nevada, Arizona).

*fusilis* Bohart 1982:174. Holotype male; USA: Nevada, Churchill Co., 12 mi ne Stillwater (DAVIS).\*

*gracilis* Bohart. Nearctic: w USA (s California).

*gracilis* Bohart 1982:175. Holotype female; USA: California, Kern Co., Rancheria Creek, Piute Mts. (DAVIS).\*

*grisselli* Bohart. Nearctic: w USA (s California).

*grisselli* Bohart 1982:175. Holotype male; USA: California, San Bernardino Co., 11 mi se Baker (DAVIS).\*

*kansensis* (Viereck). Nearctic: Canada to Mexico (except Pacific Coast states).

*kansensis* (Viereck) 1906:193. (*Chrysis*). Holotype male; USA: Kansas: Morton Co. (LAWRENCE).\*

*longiceps* Bohart. Nearctic: w USA (Nevada), Mexico (Guanajuato).

*longiceps* Bohart 1966a:120. Holotype male; Mexico: Guanajuato, 14 mi e Celaya (DAVIS).\*

*longimala* Bohart. Nearctic: w USA (s California).

*longimala* Bohart 1982:176. Holotype male; USA: California, Riverside (SAN FRANCISCO).\*

*menkei* Bohart. Nearctic: w USA (California).

*menkei* Bohart 1982:177. Holotype female; USA: California, Inyo Co., 13 mi s Death Valley Junction (DAVIS).\*

*minata* Bohart. Nearctic: w USA, Canada (Alberta).

*minata* Bohart 1982:177. Holotype male; USA: California, Davis (DAVIS).\*

*nearctica* (Mocsáry). Nearctic: sw USA, nw Mexico.

*nearctica* (Mocsáry) 1911b:462. (*Spintharis*). Holotype female; USA: Arizona (BUDAPEST).\*

*alveata* Bohart 1966a:113. Holotype male, USA: California, San Diego Co., Borrego Valley (DAVIS).\*

*parkeri* Bohart. Nearctic: w USA (Utah).

*parkeri* Bohart 1982:179. Holotype female; USA: Utah, Cache Co., Logan Canyon (DAVIS).\*

*perpulchra* (Cresson). Nearctic: s Canada to n Mexico (west of 100th meridian).

*perpulchra* (Cresson) 1865b:308. (*Chrysis*). Holotype female; USA: Colorado (PHILADELPHIA).\*

*quadrituberculata* (Cameron). Nearctic: sw USA, n Mexico; Neotropical: Mexico to El Salvador.

*quadrituberculata* (Cameron) 1888:461. (*Chrysis*). Holotype male; Guatemala: Capetillo (LONDON).\*

*lobata* (Mocsáry) 1911b:472. (*Chrysis*). Holotype female; Guatemala (BUDAPEST).\*

*sierrae* Bohart. Nearctic: w USA, nw Mexico.

*sierrae* Bohart 1982:181. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS).\*

*thysana* Bohart. Nearctic: w USA.

*thysana* Bohart 1966a:120. Holotype male; USA: California, Mono Co., Paradise Camp (DAVIS).\*

*trachypleura* Bohart. Nearctic: sw Canada, w USA, nw Mexico.

*trachypleura* Bohart 1966a:121. Holotype male; USA: California, San Diego Co., Warner Springs (DAVIS).\*

## *Chrysidea* Bischoff (Figs 101 and 102)

*Chrysidea* Bischoff 1913:34. Type: *Chrysis pumila* Klug 1845:Table 45, Fig.13. Orig. desig.

## Generic diagnosis

Head broader than long; scapal basin microridged, roundly hollowed and topped by distinct convex or biconvex TFC, also an upper TFC (sometimes quite weak) which with lower one sets off a broad and reflective frontal area (Fig. 102a); F-I longer than II or III, rarely more than twice breadth; malar and subantennal spaces usually 1 MOD; subgenal area well defined; mid ocellus not lidded; pronotum with medial depression weak, sublaterally ecarinate; metanotum rounded or rarely projecting posteriorly; propodeal angle straight or incurved posteriorly; mesopleuron simple, with scrobal and episternal sulci, omaulus, and verticaulus; fore wing marginal cell with posterior vein evenly rounded, discoidal cell with outer veins nearly always faint (Fig. 101); T-II



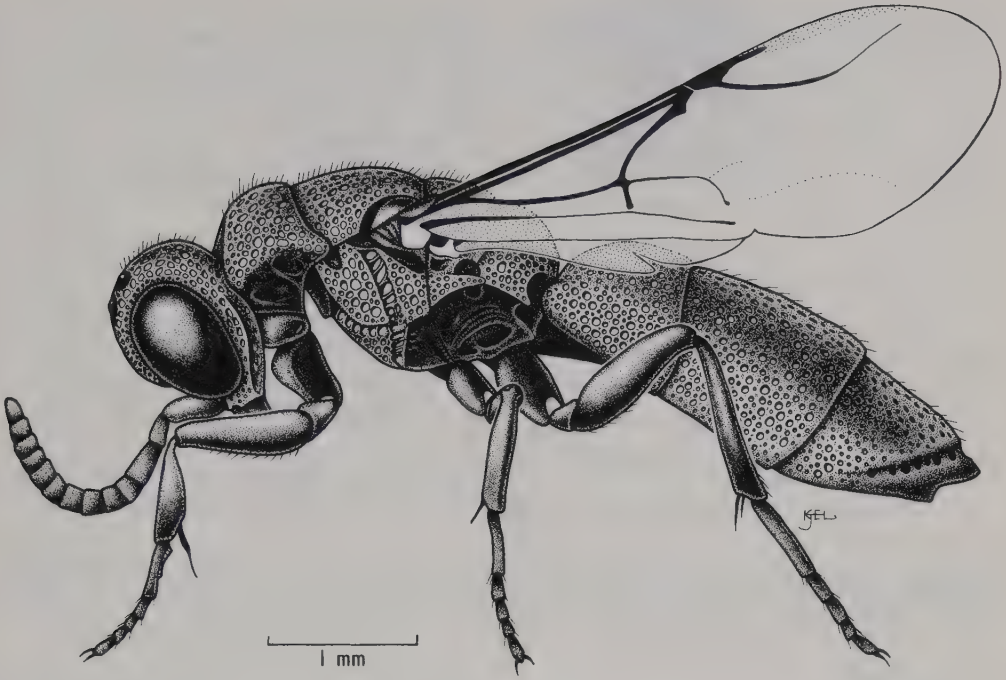


Fig. 101. *Chrysidea pumila*, female.

posterolateral angle not sharp; T-III pit row distinct, usually indented; apical margin of T-III with lateral tooth (rarely rounded), area between convex, often slightly indented medially (Fig. 102f), sometimes weakly dentate or subtruncate at middle; S-II spots round or oval, usually separated by 1 or 2 MOD. Male terminalia (Fig. 102b-e): S-VIII subtriangular, gonocoxa nearly always apically notched and appearing bilobate, cuspis broad, digitus sharp, aedeagus broad subapically.

### Hosts

Members of this genus parasitize various Sphecidae. Zimmermann (1961b) reported *Trypoxylon* and *Pison* as hosts of *dido* and *agnata*, and *Sceliphron madecassum* Grib. and *S. hemipterum* F. as hosts of *bellula*.

### Distribution

One species, *pumila*, is widespread in the south-western Palearctic and in the continental Afrotropical Region. Otherwise, there are two other Palearctic species, three Oriental species, and 13 in Madagascar (one of these, *pumiloides*, is found rarely in continental Africa as well).

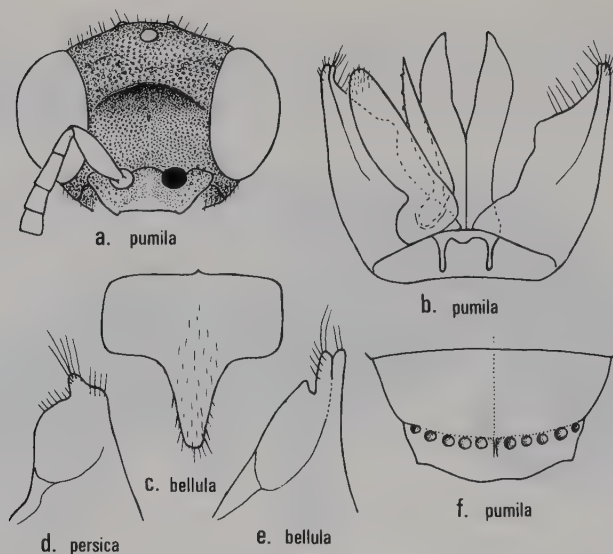


Fig. 102. *Chrysidea*. (a) face; (b) genital capsule, ventral, volsella omitted from right side; (c) S-VIII; (d), (e) gonocoxal apex; and (f) T-III. Female, except (b)–(e).

## Discussion

Typical *Chrysidea*, as exemplified by *pumila*, has the discoidal cell with faint outer veins, a semicircular TFC over a rather deep scapal hollow, a broad light-reflecting area above TFC, T-III apex laterally dentate but medially convex or slightly indented, and well-separated S-II spots. There is considerable morphological diversity among the Madagascan species. Here, the fore wing discoidal cell is complete in *agnata* and *bellula*, whereas the outer veins, and particularly the anterior one, are weak or obsolete in the other species. The T-III apex is normally convex medially except in *dido* and *phoebe*, which have a medial denticle. In *zimmermanni* the metanotum is prolonged into a point posteriorly. In *bicallosa* the scutum is humped over the tegula, and in *bucculenta* the malar space is as long as F-I, contrary to the usual short space.

There seems to be a rather close relationship to *Trichrysis*, at least between *dido* and *phoebe*, with their tridentate T-III, and those *Trichrysis* species, such as *polinierii*, in which the pronotum is sublaterally ecarinate. However, the apically bilobate gonocoxa of *Chrysidea* is quite different from the condition seen in *Trichrysis*.

Zimmermann (1956, 1961b) contributed more than any other person to our knowledge of the genus. Most previous authors had placed the species in *Chrysis* or *Chrysogona*. Zimmermann followed the lead of Bischoff, who described *Chrysidea*, and listed the generic characters based largely on a study of the Madagascan fauna. However, Zimmermann put *agnata* and *bellula* in *Chrysis* (*Dichrysis*) because of the complete fore wing discoidal cell. All other features of the two species are those of typical *Chrysidea*, as pointed out by Bohart (1988c).

In the Palaearctic fauna *persica* is close to *pumila*, but the gonocoxa of the former has only a strongly rounded outer apical edge in addition to the distal projection, instead of a notched apex (Fig. 102e). We have studied European and African specimens which indicate that only the widespread *pumila* is involved in Africa.

We have been able to examine most of the primary types of the 19 species listed, except those of *agnata*, *monticellii*, *persica*, and *pumila*.

## Checklist of *Chrysidea*

---

*agnata* Zimmermann. Afrotropical: Madagascar.

*minor* (Buysson) 1901:100. (*Chrysis hova* var.). Holotype female; Madagascar: Sikora (VIENNA). Nec Mocsáry 1889.

*agnata* Zimmermann 1956:152. Repl. name for *minor* Buysson 1901.

*antiope* Zimmermann. Afrotropical: Madagascar.

*antiope* Zimmermann 1961b:308. Holotype female; Madagascar: Bekily (PARIS).\*

*asensioi* (Mingo). Palaearctic: Spain.

*asensioi* (Mingo) 1985:215. (*Chrysis*). Type; Spain: Palencia, Puebla de Valdivia; Guadalajara, Brihuega (MADRID).

*aurata* (Bischoff). Afrotropical: Madagascar.

*aurata* (Bischoff) 1910:450. (*Chrysogona*). Holotype female; Madagascar: Antananarivo (BERLIN).\*

*bellula* (Guérin). Afrotropical: Madagascar.

*bellula* (Guérin) 1842:149. (*Chrysis*). Lectotype female (desig. Bohart herein); Madagascar (GENOA).\*

*hova* (Saussure) 1887:25. (*Chrysis*). Holotype female; Madagascar (GENOA).

*friedrichsi* (Schulthess) 1918:98. (*Chrysis*). Syntype males; Madagascar: Diego Suarez (ZURICH).

*bicallosa* (Buysson). Afrotropical: Madagascar.

*bicallosa* (Buysson) 1900:131. (*Chrysogona*). Holotype male; Madagascar: Antongil Bay (PARIS).\*

*bidenticulata* (Mocsáry). Oriental: Philippines.

*bidenticulata* (Mocsáry) 1913c:289. (*Chrysis*). Lectotype male (desig. Bohart 1986b); Philippines: Luzon, Los Banos (BUDAPEST).\*

*brooksi* Bohart. Afrotropical: Madagascar.

*brooksi* Bohart 1988c:130. Holotype female; Madagascar: Beza Mahataly Reserve (LAWRENCE).\*

*bucculenta* (Mocsáry). Afrotropical: Madagascar.

*bucculenta* (Mocsáry) 1908a:262. (*Chrysogona*). Lectotype female (desig. Bohart 1986b);

Madagascar: Antongil (BUDAPEST).\*

*dido* Zimmermann. Afrotropical: Madagascar.

*dido* Zimmermann 1956:149. Lectotype female (desig. Kimsey 1986c); Madagascar: Bekily (PARIS).\*

*furiosa* (Cameron). Oriental: s India to Laos, North Borneo, Philippines; Palaearctic: s USSR.

*furiosa* (Cameron) 1897a:3. (*Chrysis*). Holotype female; India: Barrackpore (OXFORD).\*

*monticellii* (Buysson). Oriental: Java.

*monticellii* (Buysson) 1905:1. (*Chrysis*). Holotype female; Indonesia: Java (NAPLES).

*persica* (Radoszkowski). Palaearctic: Iran.

*persica* (Radoszkowski) 1881a:V. (*Chrysis*). Syntype male, female; Iran: Mt. Damavend (KRAKOW ?).

*phoebe* Zimmermann. Afrotropical: Madagascar.

*phoebe* Zimmermann 1956:151. Holotype female; Madagascar: Bekily (PARIS).\*

*phragmaticola* Zimmermann. Afrotropical: Madagascar.

*phragmaticola* Zimmermann 1961b:306. Holotype female; Madagascar: Bekily (PARIS).\*

*pumila* (Klug). Palaearctic: Europe, North Africa, Middle East, s USSR; Afrotropical.

*pumila* (Klug) 1845:Table 45, Fig.13. (*Chrysis*). Type ?; Ethiopia: Ambukohl (BERLIN ?).

*assimilis* (Dahlbom) 1854:201. (*Chrysis*). Syntype male, female; Sicily, Egypt (VIENNA, TURIN).

*virgo* (Abeille) 1877:66. (*Chrysis*). Syntypes; Italy: La Penne (PARIS).\*

*tarsata* (Tournier) 1879:99. (*Chrysogona*). Holotype male; Italy: Sicily, Syracuse (GENEVA).

*braunsii* (Mocsáry) 1902b:539. (*Chrysogona*). Holotype male; South Africa: Algoa Bay (PRETORIA-TM). N. synonymy.\*

*africana* (Mocsáry) 1902b:541. (*Chrysogona*). Holotype female; South Africa: Orange Free State: Bothaville (PRETORIA-TM). N. synonymy.\*

*rebecca* (Morice) 1909:467. (*Chrysis*). Holotype female; Jordan: Ain Dilb (OXFORD).\*

*atrata* (Kiss) 1930:78. (*Chrysogona pumila* var.). Type ?; Hungary: Peer (Mus. ?).

*disclusa* (Linsenmaier) 1959a:171. (*Chrysis pumila* ssp.). Holotype male; Spain: Almeria (LUZERN). N. synonymy.

*pumiloides* Zimmermann. Afrotropical: Madagascar.

*pumiloides* Zimmermann 1956:143. Holotype female; Madagascar: Bekily (PARIS).\*

*rhodopis* Zimmermann. Afrotropical: Madagascar.

*rhodopis* Zimmermann 1961b:307. Holotype female; Madagascar: Bekily (PARIS).\*

*zimmermanni* Bohart. Afrotropical: Madagascar.

*zimmermanni* Bohart 1988c:131. Holotype female; Madagascar: Fontabambo (DAVIS).\*



*Chrysis* Linnaeus (Figs 103–114)

*Chrysis* Linnaeus 1761:414. Type: *Sphex ignita* Linnaeus 1758:571. Desig. by Latreille 1810:437.

*Euchroeus* Latreille 1809:49. Type: *Chrysis purpuratus* Fabricius 1787:283. Monobasic. N. synonymy.

*Pyria* Lepeletier and Serville 1825:494. Type: *Chrysis lincea* Fabricius 1775:367. Desig. by Smith 1874*b*:464.

*Pyrochloris* Klug 1839:2. (no spp. placed in genus).

*Platycelia* Dahlbom 1845:8. Type: *Platycelia ehrenbergi* Dahlbom 1845:8. Monobasic.

*Spintharis* Klug 1845:Table 45. Type: *Chrysis humeralis* Klug 1845:Table 45, Fig. 7. Desig. by Richards 1935:158.

*Chrysogona* Förster 1853:327. Type: *Chrysogona gracillima* Förster 1853:328. Monobasic.

*Pyrosoma* Dahlbom 1854:96 (*nomen nudum*). Nec Péron 1804.

*Nemophora* Dahlbom 1854:168. Type: *Nemophora carinata* 'Spinola' Dahlbom 1854:167. Nec Block 1799:119. (= *Chrysis capensis* Mocsáry). Orig. desig.

*Poeciloechroa* Dahlbom 1854:236. Type: *Chrysis alternans* 'Klug' Dahlbom 1854:236. Monobasic.

*Dichrysis* Lichtenstein 1876:27. Type: *Chrysis bihamata* Spinola 1838:450. Desig. by Bodenstein 1939*b*:126.

*Tetrachrysis* Lichtenstein 1876:27. Type: *Chrysis aeruginosa* Dahlbom 1854:267 (= *Chrysis succincta* Linnaeus 1767:947). Desig. by Ashmead 1902:226.

*Hexachrysis* Lichtenstein 1876:27. Type: *Chrysis micans* Rossi 1792:133 (= *Chrysis variegata* Olivier 1790:677.). Desig. by Bodenstein 1939*b*:127.

*Chrysaspis* Saussure 1887:25. Type: *Chrysaspis grandidieri* Saussure 1887:25. Monobasic.

*Heptachrysis* Mocsáry 1889:594. Type: *Chrysis festina* Smith 1874*b*:462. Monobasic.

*Cephalochrysis* Semenov 1910:224. Type: *Chrysis sabulosa* Radoszkowski 1877:24. Desig. by Bodenstein 1939*b*:125.

*Eurychrysis* Bischoff 1910:445. Type: *Eurychrysis stilbiceps* Bischoff 1910:445 (= *nasuta* Mocsáry 1902*b*:556). Monobasic.

*Pseudotetrachrysis* Bischoff 1910:447. Type: *Chrysis oxygona* Mocsáry 1890:60. Desig. by Bodenstein 1939*b*:131.

*Pseudogonochrysis* Bischoff 1910:448. Type: *Chrysis guineensis* Mocsáry 1889:352 (= *dira* Mocsáry 1883:17). Desig. by Bodenstein 1939*b*:130.

- Pseudobexachrysis* Bischoff 1910:448. Type: *Chrysis splendens* Dahlbom 1854:312. Monobasic.
- Octochrysis* Mocsáry 1914:71. Type: *Chrysis insperata*. Mocsáry 1914:71. Nec Chevrier 1870 (= *decemdentata* Linsenmaier 1959a:167 repl. name). Monobasic.
- Chrysidium* Brauns 1928:390. Type *Chrysidium antiquum* Brauns 1928:390. Monobasic.
- Heterochrysis* Brauns 1928:392. Type: *Chrysidium braini* Brauns 1928:392. Monobasic.
- Cornuchrysis* Balthasar 1953:171. Type: *Cornuchrysis clypeata* Balthasar 1953:171. Nec Mocsáry 1889:393 (= *amneris* Balthasar 1953:227). Monobasic.
- Glossochrysis* Semenov 1954a:116. Type: *Chrysis svetlana* Semenov 1954a:116. Present desig.
- Gonodontochrysis* Semenov 1954a:120. Type: *Chrysis flamma* Semenov 1954a:120. Present desig.
- Actinochrysis* Haupt 1956:74. Type: *Chrysis bicolor* Lepeletier 1806:127 (*Chrysis succincta* var.). Orig. desig.
- Cymatochrysis* Haupt 1956:74. Type: *Chrysis viridula* Linnaeus 1761:415. Orig. desig.
- Ischnochrysis* Haupt 1956:74. Type: *Chrysis gracillima* Förster 1853:328. Orig. desig.
- Acanthochrysis* Haupt 1956:74. Type: *Chrysis cerastes* Abeille 1877:68. Orig. desig.

The genus *Chrysis* has about 1000 currently recognized species and is as large as all of the rest of the Chrysididae together. Along with the size of the genus there is a great amount of variation. *Chrysis* is best defined by a combination of numerous, non-exclusive characters, many of which are found throughout the genus. For instance, all *Chrysis* have the fore wing marginal cell attenuate and, if extended by creases, terminating on the front wing margin. Also, there is no well-defined median tooth on the distal margin of T-III as found in *Pentachrysis*, *Praestochrysis*, *Allochrysis*, *Odonotobrydium*, and some *Trichrysis* and *Primeuchroeus*. However, a tiny median projection may occur in *Chrysis oxygona*, *catagrapha*, and several other species. So, even this 'absence' character is not absolute!

A character summary for a common and rather widespread species in the largest species group will give a basis for understanding the genus. *Chrysis ignita* (Fig. 103) might be considered 'typical' of the genus. The fact that it is also the generotype is coincidental.

*Head.* In *ignita* the flagellum is dark, flagellomeres are cylindrical, and F-I is longer than F-II or F-III in both sexes. The antennal bases are well separated and the subantennal space is about 1 MOD. The scapal basin is not, or hardly, microridged. The malar space is more than 1 MOD. TFC is distinct, somewhat biconvex, and without posterior branches. Ocelli are well removed from the compound eyes and not lidded. LID is about 1.5 times the breadth of one eye. The genal carina is about 0.7

MOD from the eye at its closest point. On the underside of the head the preoccipital ridge and hook are present.

*Thorax.* The notum is closely covered with moderate punctures. The pronotum has moderate humeri (shoulders) and no sublateral carina; median length of the posterior raised area is about that of the scutellum. The mesopleuron is rather smoothly rounded, edentate, and bears a distinct scrobal sulcus. The fore wing discoidal cell has well-

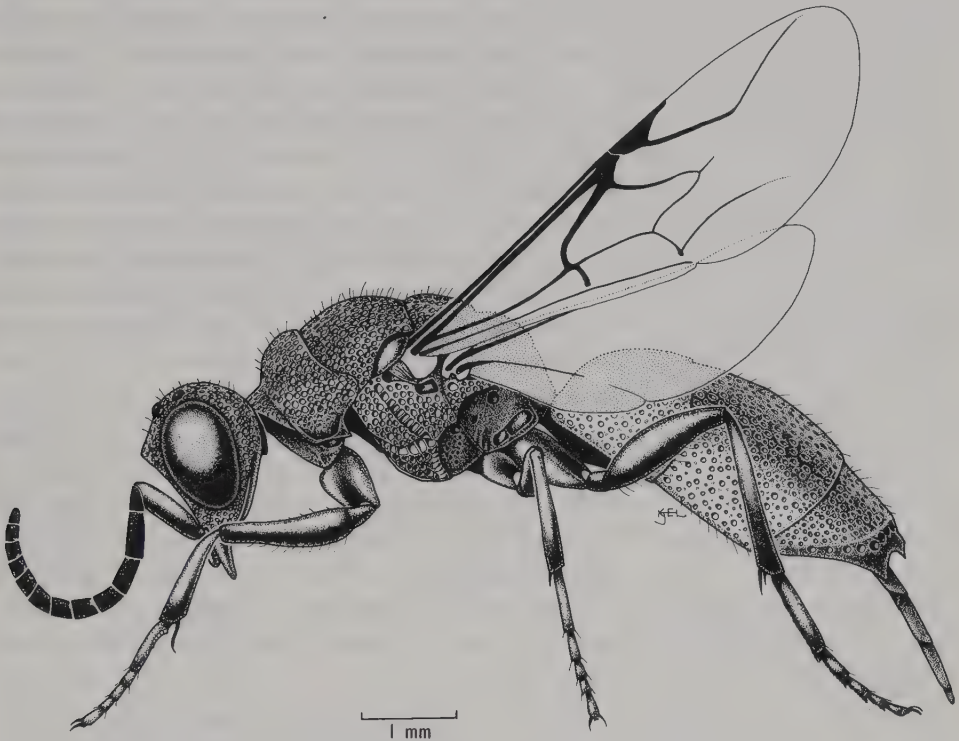


Fig. 103. *Chrysis ignita*, female.

developed veins. Legs are simple, without unusual angles, long hair, or tufts. The lateral propodeal angle is moderately blunt, and somewhat concave along the posterior margin.

*Abdomen.* T-I is broader than long, rounded laterally, and not divided anteriorly into strong lobes. T-II has a median longitudinal ridge. T-III has a distinct pit row, a slight prepit bulge in females, and four posterior teeth. S-II dark spots are rounded and separated. S-IV is concealed in females, nearly so in male. Male terminalia: S-VIII triangular, gonocoxa triangular but not digitate or spinose, volsellar elements slender, digitus nearly as long as cuspis, and aedeagus rather slender.

In other parts of the genus, each of the above features may be different, and in some cases it is characteristic of a species group (most of the characters are figured). The differences are discussed below with examples.

*Head.* In some species, the flagellum may be considerably broadened (*antennata*); or mostly orange in males (*capitalis*, *fulvicornis*, *gussakovskii*); or both sexes (*olgae*); or male F-I and/or II may be short (*maculicornis* group, *delicatula* group, *antennalis* group, etc.). The antennal bases may be almost touching (nearly all of *pallidicornis* group). The subantennal space may be 2 MOD or more (*pallidicornis* group, *nasuta*). The scapal basin is frequently microridged (*maindroni*, *taczanovskii*, *splendens*, *wahlbergi*, etc.). The malar space may be quite short (*maculicornis*) or quite long (*delicatula*). TFC may be absent (*amneris*), partial (*splendens*), branched posteriorly to define a mid ocellar area (*westermanni*), essentially double (*antennata*), parenthesis-like (*wahlbergi*), projecting (*grandis*), or welt-like (*alternans*). Ocelli may be as little as 1 MOD from the eyes (*maindroni*), and may be lidded (*westermanni*, *stilboides*, *smaragdula* groups). LID is subject to great variation but is a relatively good species character. It is usually broader in females, and may be twice an eye diameter (*ebrenbergi*), or only a little more than one diameter (*nasuta*). The genal carina may nearly touch the eye (*propria*, *bibamata*, *pallidicornis* groups) or may be absent (*ebrenbergi* female, *ugandae*). The preoccipital ridge and hook are almost universal but may be absent (*ebrenbergi*).

*Thorax.* The pronotal humeri may be projecting (*ebrenbergi* female), or sharp (*paraguayensis*); a lateral carina may be present (*heymonsi*, *laborans*), or the pronotum may be longer than the scutellum (*comparata* and *longicollis* groups). Scutal punctures may be somewhat spaced (*comottii*). The mesopleuron may be dentate (*lincea*, and *intricans* groups, *smaragdula*, etc.), the scrobal sulcus may be evanescent (*longigena*, *rectilineata*, *delicatula*). The fore wing discoidal cell outer veins may be weakly indicated (*amneris* males). In some species the legs have long hair (*bibamata*, *pilosolateralis*, *striatula*). The propodeal angle may be convex or lobate beneath (*smaragdula*, *interceptor*), truncate (*aurulenta*), or short (*mixta*).

*Abdomen.* T-I may be nearly as long as broad (*delicatula*) or with anterior margin lobate (*subsINUATA*). T-II may lack a median longitudinal carina (*sabulosa* group, etc.). T-III rarely has the pit row obsolete (*atrypa*); a prepit bulge is sometimes absent (*sabulosa*); the number of T-III posterior teeth may be 0 (*hydropica*, *millenaris* groups, etc.), two (*bibamata* group, etc.), six (*smaragdula* group, *oculata* group), teeth or angles of lateral edge one on each side for a total of four (*rufitarsis* and *pulchella* groups), one on each side for a total of six (*lincea*, *heymonsi*, *splendens*, *wahlbergi*, and *longicollis* groups), or two on each side for a total of eight (*decemdentata* group). S-IV is rarely completely exposed (*varia* males). S-VIII may be attenuate posteriorly (*antennalis*, *conica*, *grandis*), or broadly rounded posteriorly (*facialis*, *westermanni*, *cuprata*). The gonocoxa may be attenuate posteriorly (*pulchella*, *inaequalis*, *extensa*, *conica*, *varia*, etc.), or with a strong inner lobe (*angolensis*, *aureomarginata*, *westermanni*, *astralia*, *varidens*). The digitus may be short (*elegans*), medially foliaceous (*capitalis*), or medially microdentate (*eximia*). The



cusps may be broad (*longicollis*), narrow (*smaragdula*), or claviform (*extensa*). The aedeagus may be expanded basally (*nisseri*), expanded apically (*coloradica*), or unusually serrate (*capitalis*).

### Species groups

Linsenmaier (1959a) was the first chrysidid worker to formalize species groups. Within *Chrysis*, as treated herein, he established 52 groups, including a few monotypic subgenera. These groups were all in the Old World except for *carinata* (= *grandis* group) from South America. Linsenmaier presented a key to 33 of his groups, mostly from the Palearctic Region, and commented on characteristics of the others. In general we have followed his arrangement and nomenclature. However, where the names seem inappropriate because of homonymy (*carinata* and *clypeata* groups) or synonymy (*incisa* and *bucculenta* groups), we have made changes. In a few cases we have combined groups (*scutellaris* with *comparata*, *leachii* with *succincta*, *emarginatula* with *elegans*, *gracillima* with *varidens*, *fasciata* with *smaragdula*). Some groups or parts of groups have been removed to other genera (part of *versicolor* to *Spintharina*; and *austriaca*, *dichroa*, and *radians* to *Chrysura*). Some of his subgeneric concepts we have treated as genera: *Chrysura*, *Spintharina*, *Trichrysis*, *Chrysidea*, *Pentachrysis*. Others have been synonymized: *Octochrysis*, *Platycelia*, *Eurychrysis*, *Pseudotetrachrysis*, *Cornuchrysis*, and *Chrysogona*. Although these names are not used, we have included many of the categories they represent as species groups. The total now comes to 70. We have tried to base our groupings on all available characters including dissected male terminalia. Many of our differences with Linsenmaier would probably not have occurred if he had studied male terminalia more closely. Although he gave nearly 200 figures, the differences are for the most part obscure, and S-VIII was not considered.

We present separate keys to Old World and New World species groups, followed by group diagnoses. In the five cases where groups occur in both geographical areas (*comparata*, *angolensis*, *ignita*, *smaragdula*, *succincta*), the diagnoses are given only in the Old World section.

In the combined and alphabetical synonymic list the appropriate species group is indicated where possible. However, many species are unassigned, either because we have not seen identified specimens, or because material examined was inadequate. It is obvious that when more material becomes available, additional species groups will need to be characterized.

Some *Chrysis* species names have had to be changed from those commonly given, either because of synonymy resulting from examination of types, or from homonymy which has been previously unrecognized or ignored. The following are some of the more important changes. Others can be found in the species list.

*coerulans* Fabricius 1804 = *nitidula* Fabricius 1775

*fuscipennis* Brullé 1846, preoccupied by *fuscipennis* Dahlbom 1829, = *angolensis* Radoszkowski 1881b

*iris* Christ 1791 = *purpurata* Fabricius 1787

*sexdentata* Christ 1791 = *variegata* Olivier 1790

*sybarita* Förster 1853 = *graelsii* Guérin 1842 (see Invrea 1948:258).

*Hosts.* *Chrysis* parasitize a wide variety of wasps and bees in the families Sphecidae, Eumenidae, Megachilidae, and Anthophoridae as discussed under each species group.

## KEY TO OLD WORLD CHRYSIS SPECIES GROUPS

- 
1. T-III in basal  $1/4$ – $1/3$  of lateral edge with a tooth or rather abrupt swelling (Fig. 108*b–d, b–i*); apex of T-III with 4 distinct teeth 2  
T-III in basal  $1/4$ – $1/3$  of lateral edge without a tooth or abrupt swelling; posterior apex of T-III with 0, 2, 4, 6, 7 teeth 5

---

  2. T-III with a sharp median longitudinal ridge (Fig. 107*q*); basolateral swelling of T-III simply a convexity; mesopleuron bidentate but metanotum simple; Palearctic *inaequalis* group, p.349  
T-III without a sharp median longitudinal ridge; Afrotropical; other characters various 3

---

  3. T-III with a weak median prepit depression, overall punctation usually coarse (Fig. 107*n*); face (Fig. 104*c*) *splendens* group, p.361  
T-III without a median prepit depression; overall punctation usually medium to fine 4

---

  4. T-III apex with teeth rather close together; pit row distinct throughout (Fig. 107*m*); pronotum shorter than scutellum; metanotum usually with a posteromedian projection; face (Fig. 104*f*) *wahlbergi* group, p.367  
T-III apex with median pair of teeth far apart; pit row nearly effaced medially (Fig. 107*r*); pronotum longer than scutellum; metanotum simple; face (Fig. 105*f*) *insolita* group, p.351

---

  5. T-III apex with a row of 6 teeth (Fig. 107*l*), sometimes also a median denticle or additional lateral teeth 6  
T-III apex with 4 teeth, or fewer, sometimes also a median denticle (Fig. 107*j*) or an additional lateral tooth 8

---

  6. S-II with a pair of well separated round spots, pit row practically absent (Fig. 107*l*); male F-I–II short and, taken together, shorter than F-III (Fig. 105*e*) *somaliae* group, p.361

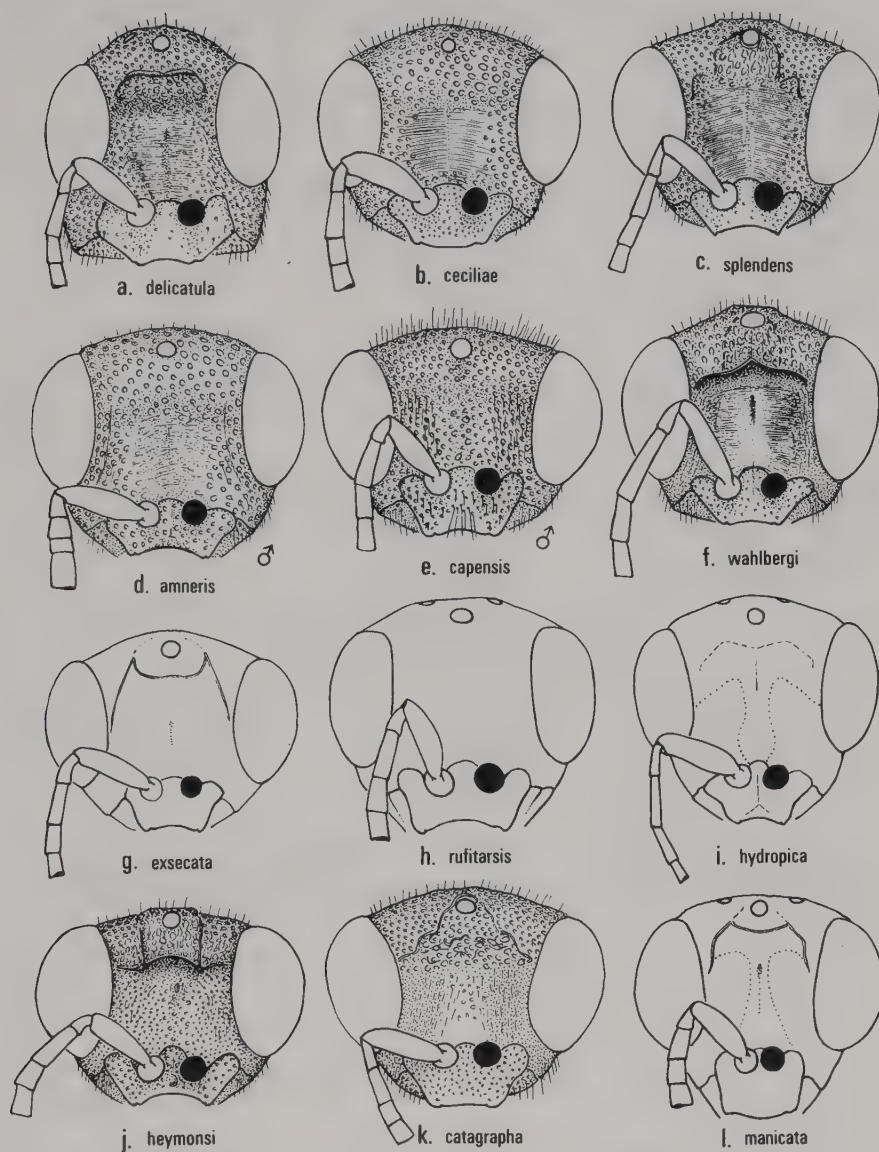


Fig. 104. *Chrysis*, faces. Female, except as indicated.

S-II spots transverse and often fused; pit row distinct; male F-I sometimes reduced, but not F-II

7. F-I in both sexes about as broad as long or shorter (Fig. 106*v*); mesopleuron with at least one prominent tooth; metanotum with a well marked median depression, or mucronate. *oculata* group, p.355  
 F-I longer than broad; other characters different from above *smaragdula* group, p.360
- 
8. T-III lateral edge nearly straight but with a median or submedian denticle (Fig. 108*g*) 9  
 T-III lateral edge straight or curved but without a median or submedian denticle, sometimes with a posterior one 10
- 
9. Metanotum with a strong, pointed mucro (Fig. 108*p*); pronotum rounded laterally; mesopleuron extensively flattened and polished (Fig. 108*o*); F-I quite short in both sexes (Fig. 106*u*) *lincea* group, p.352  
 Metanotum with a short and flat projection (Fig. 108*g*); pronotum sharply carinate laterally; mesopleuron coarsely punctate; F-I longer than F-II (at least in female) (Fig. 104*j*) *heymonsi* group, p.347
- 
10. T-III lateral edge with a tooth or angle well beyond middle, followed by an emargination (many species appearing 6-toothed) (Fig. 108*f*) 11  
 T-III lateral edge straight or gently curved, sometimes irregular or weakly angled out; T-III with at most 4 teeth. 17
- 
11. T-III apex without distinct medial teeth (Fig. 107*o*, *u*) 12  
 T-III apex with a medial and a lateral pair of teeth (if face is unusually narrow and narrowly microridged medially, skip to couplet 17) 13
- 
12. TFC and pit row well developed (Fig. 107*o*); face microridged medially or rarely polished; pronotum shorter than scutellum. *pulchella* group, p.358  
 TFC and pit row weakly developed; apicolateral tooth of T-III sometimes prong-like (Fig. 107*a*); face rather completely punctate (Fig. 104*b*); pronotum longer than scutellum *rufitarsis* group, p.359
- 
13. Pronotum not longer than scutellum; malar space about 1 MOD; Afrotropical 14  
 Pronotum longer than scutellum; malar space longer than 1 MOD. 15
- 
14. Female face completely punctate, except narrowly polished medially; male F-I l/w 1.5 and longer than either F-II or III *alternans* group, p.333  
 Female face broadly polished medially; male F-I and II both short, together, a



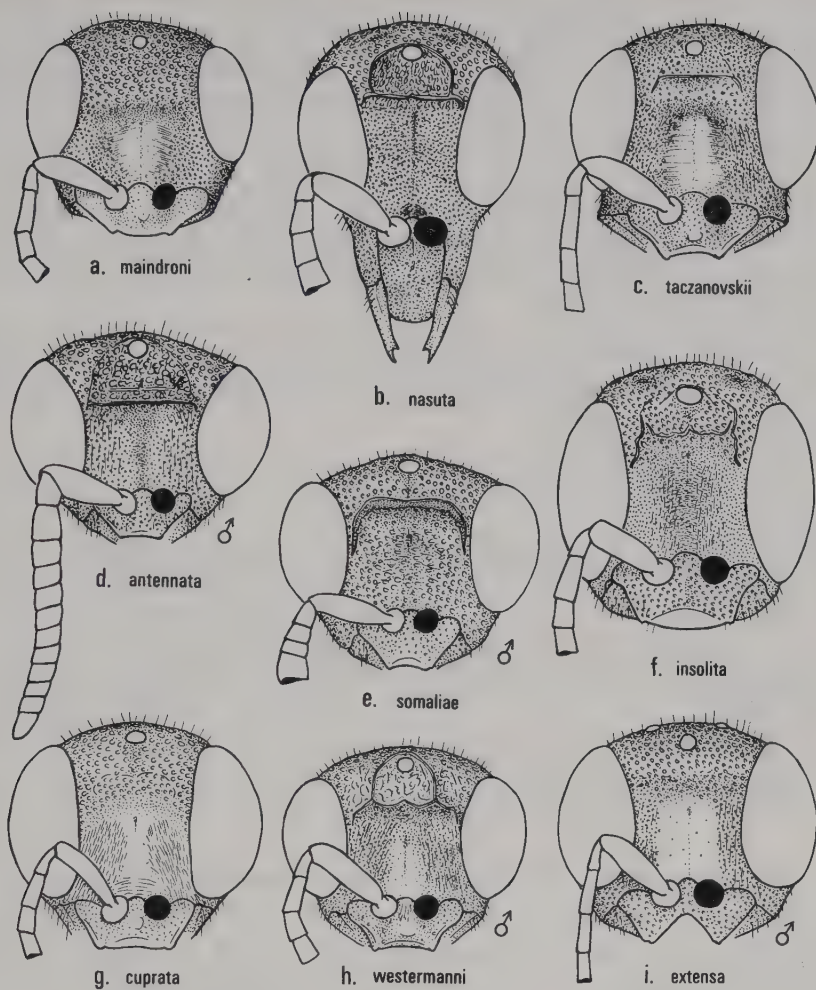


Fig. 105. *Chrysis*, faces. Female, except as indicated.

little longer than F- III

*porphyrophana* group, p.356

15. Face microridged medially; subantennal space about 1 MOD; Afrotropical

*longicollis* group, p.352

Face either completely punctate or extensively setose, not microridged; subantennal space 1.3 MOD or more

16. Subantennal space about 2.5 MOD; TFC a little irregular but sharp; stout species; pit row moderately developed; Afrotropical *meadewaldoi* group, p.354  
Subantennal space about 1.3 MOD; TFC (when present) polished and welt-like; slender species; pit row nearly effaced medially (Fig. 107b); Palaearctic *sabulosa* group, p.359
- 
17. T-III apex with middle pair of teeth projecting well beyond lateral ones, which may be simply rounded or obtuse angles (Fig. 106f), or sometimes without distinct teeth and T-III apex projecting medially and angularly; S-II spots large and usually fused (Fig. 106l) 18  
T-III apex with middle pair of teeth or lobes not projecting markedly beyond lateral pair, or if edentate, margin evenly rounded or not unusually projecting medially; S-II spots various 21
- 
18. T-III apex with middle pair of teeth distinct but not sharp; lateral 'teeth' mound-like *aestiva* group, p.333  
T-III apex edentate, or if middle pair of teeth are distinct, lateral teeth sharp and angled 19
- 
19. TFC not, or only partly, developed on a prominent brow (Fig. 106c); face microridged or not *succincta* group, p.363  
TFC well developed; T-III with medial and lateral pair of teeth or angles; face microridged medially; Afrotropical (If TFC is not well developed but other features fit, skip to couplet 22.) 20
- 
20. TFC a strong crescent on a broad face; malar space about 2 MOD; male F-I and F-II, each not shorter than F-III. *exornata* group, p.345  
TFC biconvex, somewhat recurved below (Fig. 104a), sometimes spectacle-like; malar space more than 2 MOD; male F-I and F-II, each shorter than F-III (Fig. 106r) *delicatula* group, p.344
- 
21. T-III apex practically edentate, at least in broad median area (Fig. 107o), or sometimes with a median notch 22  
T-III apex with 4 teeth or rather distinct lobes 35
- 
22. Malar space short, usually 1.0 MOD or less (Fig. 105g), sometimes as much as 1.7 MOD 23  
Malar space long, 1.9–4.0 MOD (Figs 104i and 105i) 27
-

23. T-III apex with rather broad median area (breadth at least equal to length of pedicel + F-I) straight or gently convex, often indented medially, lateral angles rounded, or small and sharp; pit row quite weak; face not microridged, usually polished medially in females *bibamata* group, p.338  
T-III apex evenly rounded or with a median incision; face sometimes microridged medially; pit row various 24
- 
24. Mid ocellus lidded; face microridged medially; TFC rather strong *capitalis* group, p.339  
Mid ocellus not lidded; other characters various 25
- 
25. T-III with sharp lateral corners as viewed dorsally (*japonica*) *ignita* group (in part), p.348  
T-III practically without lateral corners as viewed from above 26
- 
26. Mesopleuron bidentate or vertically furrowed below scrobal sulcus as viewed obliquely from above; face nearly rectangular (Fig. 105g); T-III apex not deflected but edge narrowly membranous *cuprata* group, p.343  
Mesopleuron not bidentate or vertically furrowed below scrobal sulcus; face a little broadened below; T-III apex usually deflected but not membranous (Fig. 107d) *elegans* group, p.345
- 
27. Clypeus sharply incised apically; pit row well developed and deep; female F-I l/w about 4 28  
Clypeus not or very weakly concave apically; other characters various 30
- 
28. Sterna mostly black; male F-I l/w about 4 and 1.5–1.8x as long as F-II (Fig. 104i); body stout; Palaearctic *hydropica* group, p.348  
Sterna mostly green; body slender; F-I various 29
- 
29. Male F-I l/w about 1.8, and 0.9x as long as F-II; S-II spots fused; North Africa *rubricata* group, p.358  
Male F-I l/w about 4, and 1.3x as long as F-II (Fig. 105i); S-II spots widely separated; South Africa *extensa* group, p.346
- 
30. Face not microridged medially; male F-II–IV cylindrical; T-I in female with a pair of prominent humps anteromedially; Palaearctic. *subsinnuata* group, p.363  
Face microridged medially; or male F-II–IV (particularly F-II not cylindrical; T-I in female not unusually humped 31
-

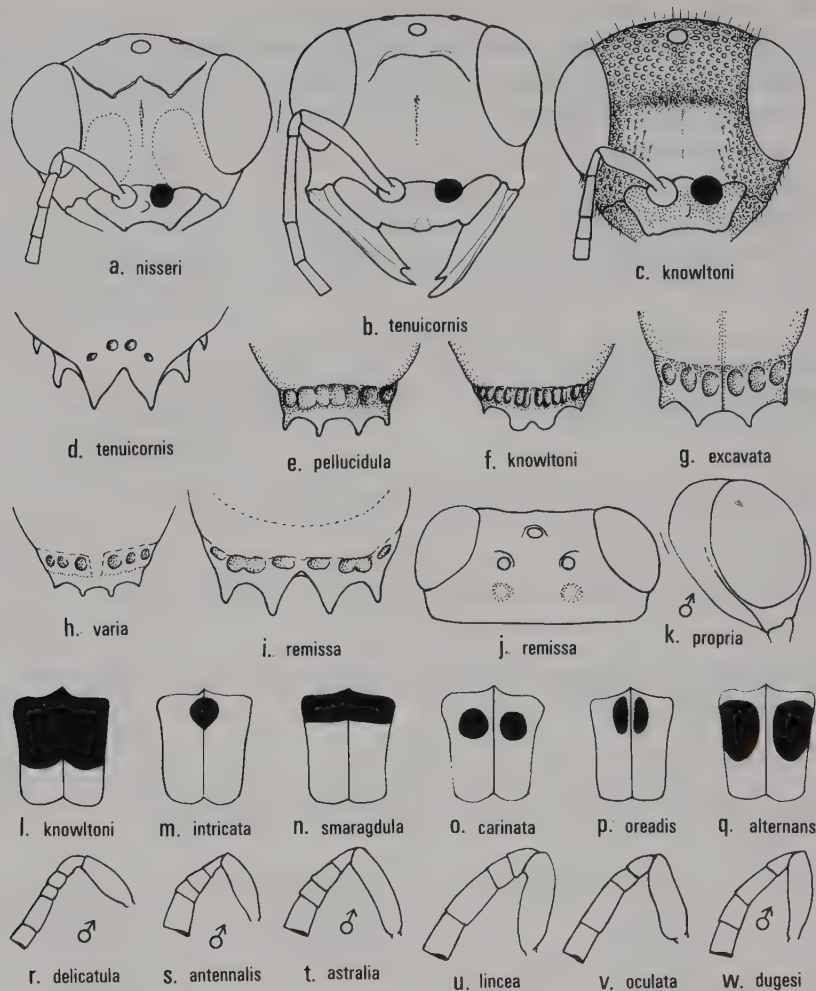


Fig. 106. *Chrysis*. (a)–(c) face; (d)–(i) T-III apex; (j) head (dorsal); (k) head (lateral); (l)–(q) S- II; and (r)–(w) antenna (to F-III). Female, except as indicated.

31. Outer veins of discoidal cell not fully pigmented; T-III not saddled; pit row not impressed, pits isolated (Fig. 107f); head broader than long, brow without TFC (Fig. 104b); Palaearctic *ceciliae* group, p.339  
Outer veins of discoidal cell distinctly pigmented; other characters various 32
- 
32. Metanotum and propodeum purple; T-III lateral edge without a basal convexity; robust species; Palaearctic *caeruleiventris* group, p.338



- Metanotum and propodeum not purple; T-III lateral edge rarely convex basally;  
small or slender species 33
- 
33. TFC deeply M-like (Fig. 104g); female T-III apex sometimes medially notched  
(Fig. 107b); Afrotropical *exsecata* group, p.346  
TFC absent, weak, or biconvex; female T-III apex not medially notched;  
Palearctic 34
- 
34. Male F-II–IV somewhat lobate (view from underside); T-III somewhat cornered  
laterally as seen from above, apical margin usually a little wavy; TFC usually  
present at least as a trace *varidens–gracillima* group, p.366  
Male F-II–IV nearly cylindrical; T-III broadly rounded laterally, apical margin  
not wavy, a little emarginate, or concave in males; TFC sometimes absent  
*millenaris* group, p.354
- 
35. Males (and rarely females of *graelisii* group): flagellum with one of following  
states: (1) both F-I and F-II shorter than F-III (Fig. 104d); (2) F-I shorter than  
F-II; (3) F-II shorter than F-III (Fig. 106w); (4) male flagellum with F-II  
(especially) asymmetrical (viewed from beneath) 36  
Males and most females: flagellum not as above 46
- 
36. Males with both F-I and F-II shorter than F-III (Fig. 106r–t) 37  
Males with F-I shorter than F-II, or F-II shorter than F-III, or F-II asymmetrical  
40
- 
37. Malar space 2.5–4.0 MOD 38  
Malar space less than 2.5 MOD 39
- 
38. TFC absent; Palearctic *amneris* group, p.334  
TFC present on prominence and recurved below; Afrotropical  
*delicatula* group, p.344
- 
39. Malar space 1.5–1.9 MOD. *cerastes* group, p.340  
Malar space 0.2–1.3 MOD *maculicornis* group, p.353
- 
40. F-II–IV somewhat lobate (view from beneath); F-I l/w more than 2; malar space  
at least 2 MOD 41  
F-II symmetrical; other characters various 42
- 
41. Metanotum evenly rounded; Palearctic. *varidens* s.s. group, p.366

- Metanotum slightly and triangularly raised dorsally; Afrotropical  
*aureomaculata* group, p.337
- 
42. F-II shorter than F-III, often only slightly (as in Fig.106w) 43  
 F-II not shorter than F-III 44
- 
43. T-III with middle pair of 'teeth' mound-like (Fig. 107a); malar space 0.5–0.9 MOD *viridula* group, p.367  
 T-III with 4 distinct teeth (Fig. 107e); malar space various *splendidula* group, p.362
- 
44. Malar space somewhat less than 1 MOD, males (and a few females) *graelisii* group, p.347  
 Malar space at least slightly more than 1 MOD, males 45
- 
45. Mid ocellus plainly lidded; Afrotropical *zuluana* group, p.369  
 Mid ocellus not lidded; Palaearctic *taczanovskii* group, p.364
- 
46. Australian species 47  
 Non-Australian species 48
- 
47. S-II spots semicircular, medial, and confluent; TFC with posterior rami weak or absent; propodeal angle somewhat convex behind *interceptor* group, p.351  
 S-II spots either rounded, oblong, and well separated, or transverse and basal; TFC with backward-pointing rami; propodeal angle straight or incurved behind *impostor* group, p.349
- 
48. Clypeus strongly projecting and apicomediaally incised; Palaearctic. *amneris* group, p.334  
 Clypeus not strongly projecting and incised 49
- 
49. Flagellum swollen, F-III broader than long; malar space 1.5–2.2 MOD; F-I l/w 1.2–1.5 (Fig. 105d); Afrotropical and Oriental *antennata* group, p.337  
 Flagellum not unusually swollen, F-III not broader than long; other characters various 50
- 
50. Metanotum slightly raised triangularly; malar space 2.7 MOD; F-I l/w 2.8–3.5; Afrotropical *aureomaculata* group, p.337

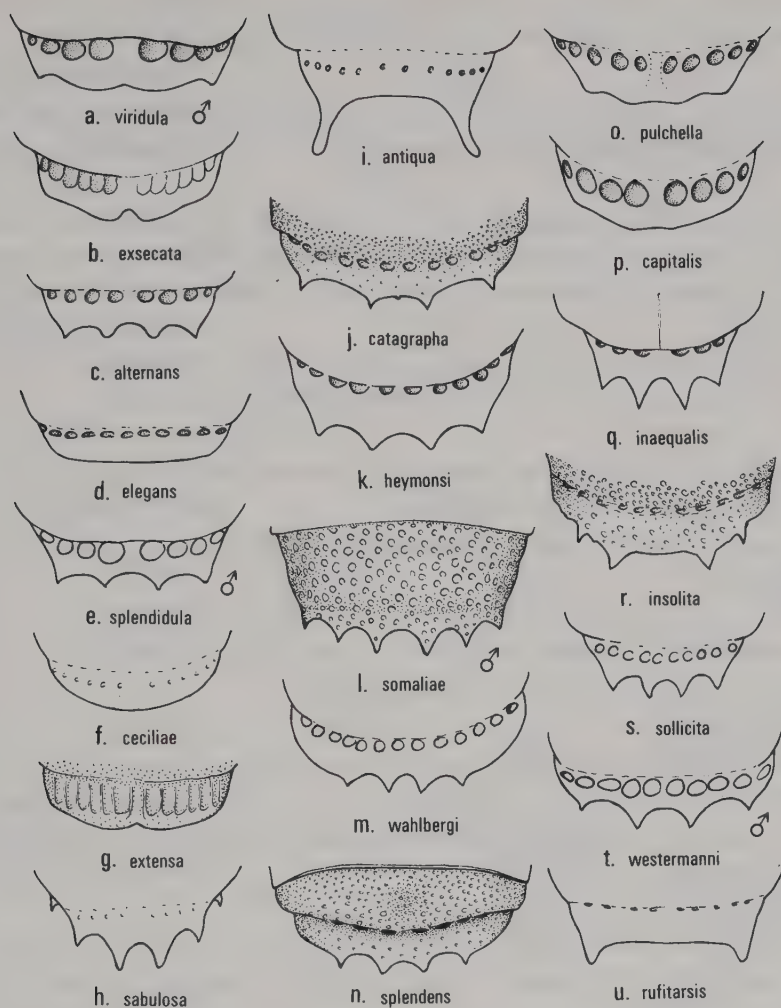


Fig. 107. *Chrysis*, T-III apex. Female, except as indicated.

Metanotum rather evenly convex; other characters various

51

51. Mesopleuron dentate along verticaulus; malar space 1.5 MOD or less; F-I l/w 2.5 or less; mid ocellar area bounded by carinae (as in Fig.105h)

52

Mesopleuron not dentate, at least along verticaulus; other characters various.

53

52. T-II with a well-developed median carina or welt; punctuation close and coarse; T-III apex often with a tiny medial denticle (Fig. 107j); Afrotropical  
*oxygona* group, p.355  
 T-II without a median carina or welt; punctuation separated by polished interspaces; T-III without a medial denticle *angolensis* group, p.334
- 
53. Pronotum longer than scutellum; F-I l/w 2-3; malar and subantennal spaces often long (Fig. 105b), especially in *gibba* subgroup; TFC not recurved below; female T-III with a characteristic curved profile; middle pair of teeth not always sharp *comparata* group, p.340  
 Pronotum shorter than or as long as scutellum; if longer, TFC recurved below, or face unusually narrow, *or* middle pair of T-III teeth quite sharp 54
- 
54. Malar space 3.5-6.0 MOD; TFC absent on prominent brow (Fig. 105a); scrobal sulcus incomplete or absent; Afrotropical *maindroni* group, p.353  
 Malar space 1-4 MOD but if more than 3.0, TFC distinct; scrobal sulcus usually complete 55
- 
55. Subantennal space 2 or more MOD; face not microridged medially 56  
 Subantennal space 1.6 MOD or less; face various 59
- 
56. T-II with a sharply raised ridge next to dense punctuation; brow without TFC (Fig. 104e); Afrotropical *capensis* group, p.338  
 T-II with at most a raised and polished line next to punctuation separated by polished interspaces; TFC various 57
- 
57. T-III much broader than long; pit row well developed, prepit bulge present; scutellum densely punctate; male scapal basin not completely covered with silver setae; Afrotropical *zuluana* group, p.369  
 T-III sometimes longer than broad; pit row (as opposed to individual pits) weakly impressed, prepit bulge hardly evident; scutellum usually with polished interpunctural areas; male scapal basin completely covered with silver setae; Palearctic 58
- 
58. TFC undeveloped; female head often greatly enlarged and modified; female mandible expanded subapically (Fig. 108m, n); pronotum projecting outward *ebrenbergi* group, p.344  
 TFC distinct; female head not unusually enlarged (Fig. 104l); other characters various *pallidicornis* group, p.356
-



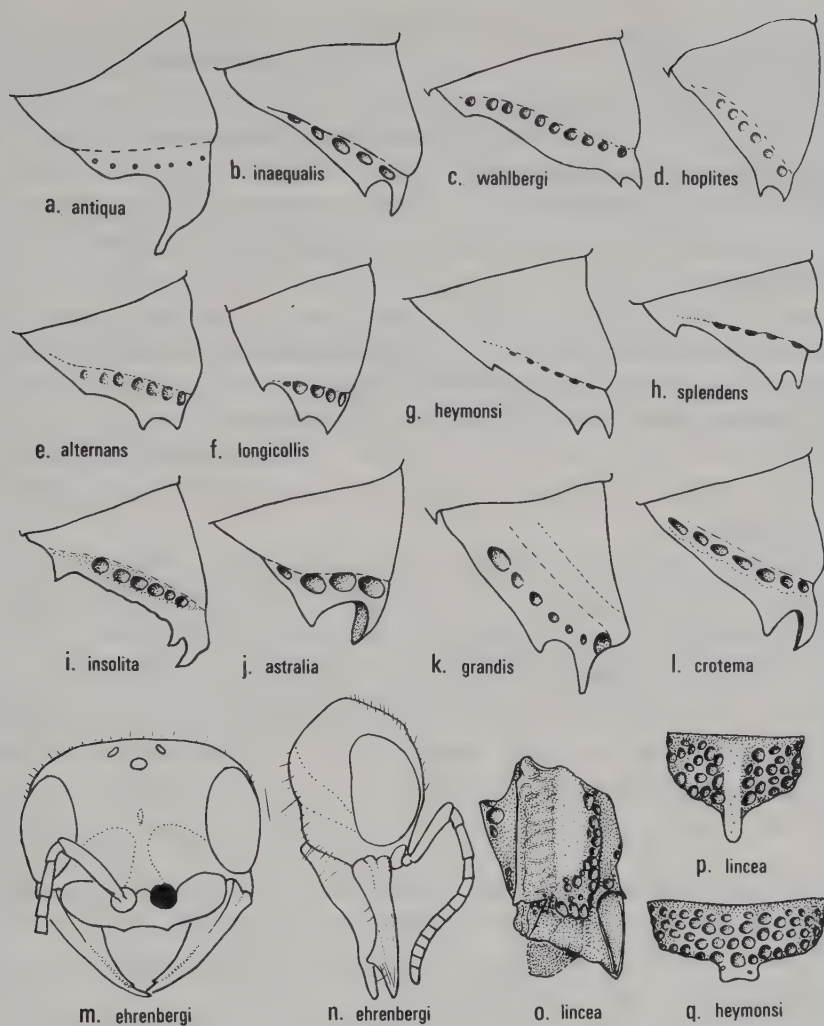


Fig. 108. *Chrysis*, female. (a)–(l) T-III (profile); (m) face; (n) head (profile); (o) left mesopleuron; and (p), (q) metanotum (dorsal).

59. T-III all or nearly all green, blue, or purple, contrasting with coloration of T-II; if T-II and T-III both green, T-III apex with middle rounded lobes and sharp lateral angle (Fig. 107a); Palearctic 60
- T-III not entirely green-blue purple and contrasting with T-II; sometimes postpit area purple and prepit green, or T-II equally purple and red 61
- 
60. Apex of T-III with rounded lobes medially (sometimes weakly developed) and a lateral angle (Fig. 107a); malar space 1 MOD or less *viridula* group, p.367

Apex of T-III with sharp medial and lateral teeth; malar space longer than 1 MOD *splendidula* group s.s., p.362

- 
61. Face narrow at TFC, and broad at malar space, resembling a wedge-like trapezoid (Fig. 105c); malar space about 1.5 MOD; F-I l/w 2-3; TFC distinct (female); for male see couplets 42, 45 *cerastes* and *taczanovskii* groups, p.340  
Face not especially trapezoidal; malar space sometimes 2.0 MOD or more; other characters various 62
- 
62. Mid ocellar area bounded completely by a sharp carinule; TFC with 5 distinct angles; malar space 1 MOD (Fig. 105b); T-III apical teeth short but sharp (Fig. 107t); moderately large species (9mm long); Afrotropical *westermanni* group, p.368  
Mid ocellar area not completely bounded, or only by faint carinulae; other characters various 63
- 
63. Mid ocellus plainly lidded 64  
Mid ocellus not lidded, or only faintly so 65
- 
64. Malar space 1.5-1.9 MOD; F-I longer than F-II; T-III middle pair of teeth short, obtusely angled, not sharp; Palaearctic. *viridissima* group, p.366  
Malar space somewhat less than 1 MOD; F-I about as long as F-II; T-III middle pair of teeth short but pointed; see also couplet 44 *graelsii* group, p.347
- 
65. TFC absent or weak and/or partial; if developed, F-I l/w 2.5-3; scapal basin microridged; and T-III apex narrow with sharp teeth; Palaearctic 66  
TFC well developed, M-like, biconvex, somewhat spectacle-like, or nearly straight; F-I, scapal basin, and T-III various 67
- 
66. Face medially polished or minutely microsculptured with isolated macropunctures, broad at malar space (female) *facialis* group, p.346  
Face medially and widely microridged, not broad at malar space (female); for male see couplet 34 *varidens* group, p.366
- 
67. T-II with strong median ridge, TFC usually biconvex to gently curved or straight, face below TFC not narrow or nearly parallel-sided; malar space 1-4 MOD *ignita* group, p.348  
T-III without more than a trace of a median ridge; TFC usually modified M-like; face various; malar space sometimes less than 1 MOD (female); for males see couplet 35) 68
-

68. Malar space 0.5 MOD or less, or if a little longer, pit row weakly developed medially; face not usually narrow. *maculicornis* group, p.353

Malar space usually 1 MOD or more; pit row well developed medially; face often quite narrow and parallel-sided

*splendidula-senegalensis* subgroup, p.362

---

*Chrysis aestiva* group (Fig. 111e)

**Diagnosis.** F-I l/w male 2.5–2.8, female 2.8; face usually microridged medially; TFC partial, weak, strongest medially, broadly M-like; malar space (male) about 2 MOD, (female) 3 MOD; subantennal space 1 MOD; propodeal angle short, stout, often blunt, straight or incurved behind; T-III rather long, not saddled in female, pit row developed, pits medium to small; T-III apex with 4 single short teeth, median pair a little longer and closer together, lateral pair often weak; T-III lateral edge simple; S-II spots large and fused or nearly so; male S-VIII triangular (Fig. 111e), gonocoxa (Fig. 111e).

**Discussion.** The *aestiva* group contains at least 15 species, all Palaearctic except *madecassa* from Madagascar. Most distinctive is the T-III apex with its middle pair of short teeth slightly surpassing the lateral angles or convexities. To this can be added the rather long F-I, weak TFC, and moderately long malar space. Differences from the *succincta* and *exornata* groups are given under them.

**Hosts.** *Anthidium lituratum* Panzer is reportedly attacked by *interjecta* (Linsenmaier 1959a).

*Chrysis alternans* group (Figs 106q, 107c, 108e, and 112b)

**Diagnosis.** F-I l/w 1.8; face extensively punctate, not microridged medially; mid ocellar area weakly defined; mid ocellus lidded; malar space 1 MOD; subantennal space about 1.7 MOD; subantennal space about 1.7 MOD; T-III pit row moderately developed; apex of T-III with four short teeth; lateral edge angled beyond middle, followed by an emargination which is sometimes weak; S-II spots rather large, separated by 2–3 MOD (Fig. 106q); male S-VIII triangular, setae rather short, genitalia (Fig. 112h).

**Hosts.** Unknown.

**Discussion.** The apicolateral emargination on T-III of the three known species in this group is found also in the *longicollis*, *porphyrophana*, and *rufitarsis* groups. The first two with *alternans*, are limited to the Afrotropical Region with the third occurring also in the Palaearctic. From the first group, *alternans* differs by its much shorter pronotum, from the second by the mostly punctate female face and longer male F-I-II, and from the third by the even distribution of teeth along the apex of T-III.

Typical *alternans* are exceptionally colourful in the manner of *mionii* and *aurifascia*, with the abdomen green, red, gold, purple, and blue. A gradual transition occurs

between this condition and green to purple with a little gold infusion. In addition to the lateral emargination of T-III, the rather short malar space differentiates *alternans* from the similarly marked *mionii* and *aurifascia*. The form of the gonocoxa of *alternans* is unique (Fig. 112b). Dahlbom (1854) published *Poecilochroa* as a subgenus for *alternans*.

***Chrysis amneris* group** (Figs 104d and 113g)

**Diagnosis.** F-I l/w male 0.8, female 2.5, F-I+II (male) shorter than F-III; face microridged medially; female clypeus projecting and apically incised, TFC absent, brow moderate; malar space 3–5 MOD (mid ocellus small); subantennal space 1.5 MOD (2.5 in female); fore wing discoidal cell with outer veins somewhat pale, especially in males; T-II with a weak and incomplete mid carina; T-III short, apex with 4 slender and sharp teeth, pit row not much impressed medially but pits rather large there; T-III lateral edge simple; S-II spots medial, stout, gonocoxa stout, not slender distally (Fig. 113g).

**Hosts.** Unknown.

**Discussion.** The two described species occur in the southern Palaearctic Region. All are small, with water-clear wings. The diminutive F-I–II in the male may relate the *amneris* and *cerastes* groups. Differences in the *amneris* group are the absence of a TFC, and the nearly circular (double) S-II spot. Additionally, the *cerastes* group species studied have the fore wing discoidal cell veins completely pigmented. In the male terminalia, the *amneris* group has S-VIII broadly rounded distally (rather than pointed), and the gonocoxa is not unusually narrowed in the distal half (compare Fig. 113g with 111n).

This is the *clypeata* group of Linsenmaier (1959a). Since *clypeata* is a homonym, we have used *amneris*, the next available name. Balthasar (1953) established the genus *Cornuchrysis* for it. Linsenmaier (1959a) used this name as a subgenus for most *Chrysis* in which males have F-I quite short.

***Chrysis angolensis* group** (Figs 7f, 110n, and 113c)

**Diagnosis.** F-I l/w (male) 1.7, (female) 2.0; facial hollow completely punctate or finely crossridged (*diademata*); TFC strong, broadly M-like; mid ocellar area defined by carinae; mid ocellus lidded, vertex somewhat bulging; malar space 0.6–1.5 MOD; subantennal space 1.3–1.5 MOD; mesopleuron with two teeth or angles along verticulus; T-III pit row well developed; T-III apex with four simple, sharp, but stout teeth, lateral edge simple; S-II spots long, oval, and well separated. Male terminalia (*angolensis*): S-VIII rather simple trianguloid, gonocoxa broadly bifurcate, bristles segregated distally, aedeagus slender (Fig. 113c).

**Discussion.** Among the four-toothed species, the *angolensis* group is distinguished by the strong mid ocellar area, bidentate mesopleuron, short pronotum, dark wings, short and stout T-III teeth, and separated S-II spots. Of the two known species, *diademata* is confined to the Philippine Islands and exhibits the bright red dorsum of





Fig. 109. *Chrysis* male terminalia. (a)–(h) gonocoxa and S-VIII; (i)–(u) volsella, (r with enlargement of digitus).

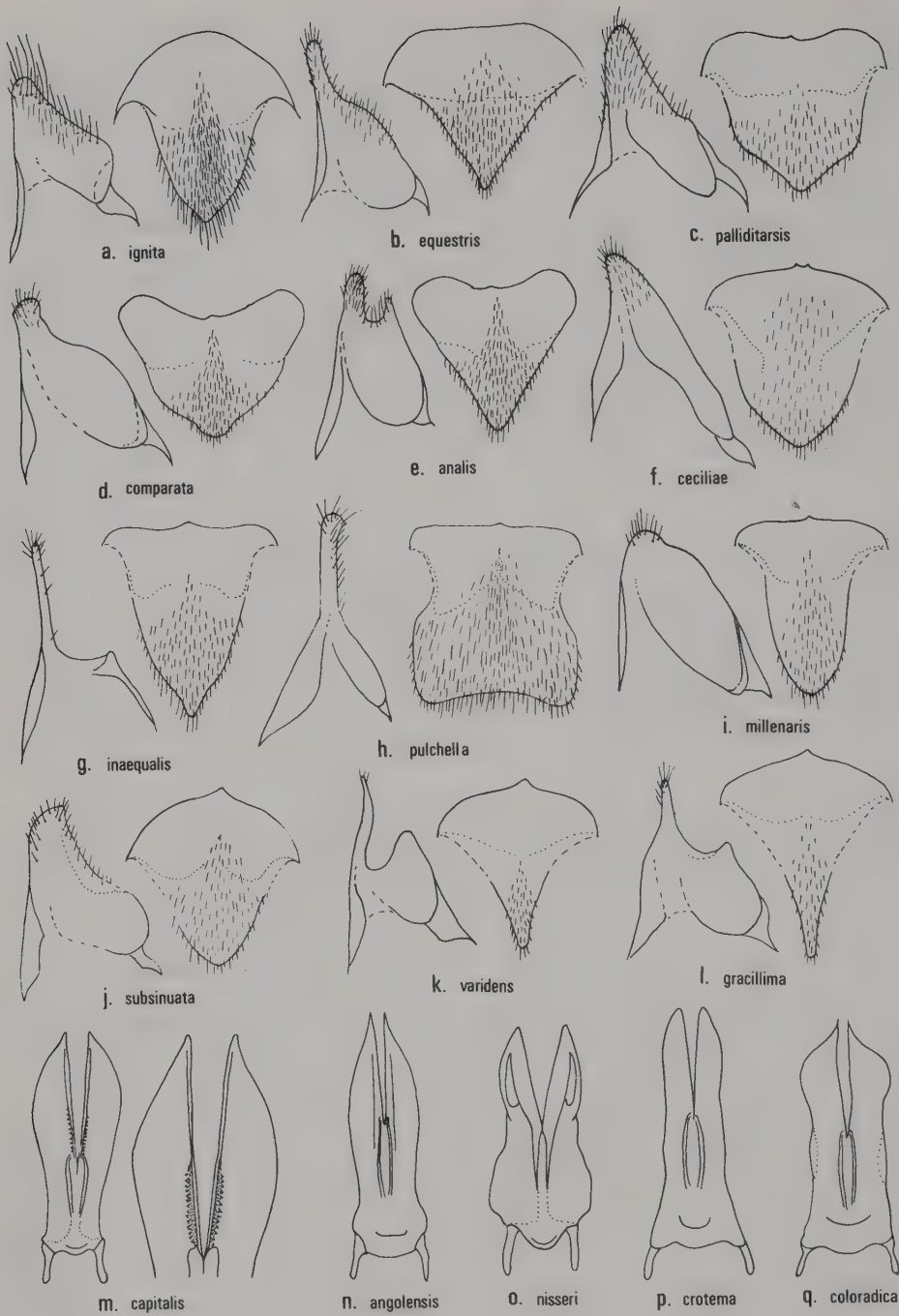


Fig. 110. *Chrysis*, male terminalia gonocoxal apex (left), S-VIII (right).

the head characteristic of a number of endemic species from that area. On the other hand, *angolensis* (previously known by the preoccupied name, *fuscipennis*) is one of the most widespread species known, probably distributed by commerce in the mud nests of *Sceliphron* so frequently attached to machinery.

**Hosts.** *Sceliphron* and *Eumenes* 'mud nest' wasps (Stage 1961, Bohart and Kimsey 1982).

***Chrysis antennata* group** (Figs 105d, 109q, and 112d)

**Diagnosis.** F-I l/w male 1.2, female 1.5; flagellum 'inflated' with F-IV broader than long; face short, medially microridged, TFC slightly down-curved, 1 MOD below a second carina marking base of distinct mid ocellar area; mid ocellus lidded; malar space (male) 1.5 MOD, (female) 2.2; subantennal space 1 MOD; metanotum with a small, stout, posteromedian tubercle or tooth; propodeal angle large, stout, pointed, weakly convex behind; T-III short, weakly saddled in female, prepit bulge projecting over rather deep pit row, pits medium to large (medially); T-III apex with four short teeth, lateral edge simple; S-II spots round, well separated. Male terminalia: S-VIII angled apicolaterally, gonocoxa with many bristles over constricted posterior half, digitus unusually narrow (Figs 109q and 112d).

**Discussion.** *Chrysis antennata* has been found in Ethiopia, Kenya, Nigeria, Tanzania, and South Africa. The Oriental species, *brachyceras*, occurs in Malaysia and Laos. These *Chrysis* are easily recognized by the broadened antenna (Fig. 105d) in both sexes, short and broad face, well-developed mid ocellar carinae, and toothed metanotum. Except for the four rather than five teeth on T-III, *antennata* resembles some species of *Praestochrysis*.

***Chrysis aureomaculata* group** (Fig. 112f)

**Diagnosis.** F-I l/w 2.8–3.5, male F-II–V angled or rounded out within; face rather polished medially but with microridging, TFC broadly M-like or an inverted U; mid ocellar area strongly or weakly defined; mid ocellus sometimes narrowly lidded; malar space (male) 2.1 MOD; (female) 2.7 MOD; subantennal space about 1 MOD; pronotum laterally angled out and then constricted medially; mesopleuron areolate below scrobal sulcus; metanotum with a slightly raised, weakly concave, V-shaped area medially; T-III saddled in female, pit row well developed; T-III apex with four short but sharp teeth, lateral edge simple. Male terminalia: S- VIII stout and blunt or rounded distally, gonocoxa bifurcate, inner lobe bare and as long or longer than outer one, which has long apical bristles (Fig. 112f).

**Discussion.** The lobulate male flagellum, as well as the divided gonocoxa, relate *aureomaculata*, *gibbula*, and *districta* to the *varidens* group. A major difference is that in the *aureomaculata* group the metanotum has a low, dorsal, V-shaped platform. Also, male S-VIII is rather broad distally (Fig. 112f). Both groups were placed by Linsenmaier (1959a) in his 'Incisicornia, Abteilung B'.

*Chrysis bihamata* group (Fig. 112*l*)

**Diagnosis.** F-I l/w male 1.8–2.0 times, female 2.0–2.5 times; face in female polished in median third and with scattered large punctures, TFC absent or weak and broadly M-like; malar space 0.8–1.5 MOD, subantennal space 1.0–1.5 MOD; eye–genal carina space mostly 0.5 MOD or less, sometimes almost zero; pronotum about as long as scutellum; metanotum rather bulging; legs with unusually long hair; T-III with coarser punctures than T-II, not saddled in female, pit row quite weak, pits small or absent; T-III apex fairly straight medially and flanked by a tooth or angle which is sometimes outside a concavity, lateral edge simple; S-II spots separated in most males, large and close in females; male S-VIII triangular or with a short point (Fig. 112*l*), gonocoxa (Fig. 112*l*).

**Hosts.** Unknown.

**Discussion.** The, approximately, 20 species assigned to the *bihamata* group occur in the Palaearctic and Ethiopian Regions. Many are rather polished and colourful desert-inhabiting species, superficially resembling those of the *pulchella* and *rufitarsis* groups. From both of these they differ by having no concavity on the lateral edge of T-III. They also have TFC at most weak (strong in *pulchella*), and the female face nearly always polished medially, with scattered large punctures (not so in *rufitarsis* or *aeraria*).

A generic name which has been proposed for this group with *bihamata* as the type is *Dichrysis* Lichtenstein.

*Chrysis caeruleiventris* group (Fig. 111*b*)

**Diagnosis.** F-I l/w 2, face medially microridged; TFC weak, partial, M-like; mid ocellar area weakly defined; malar space 2–2.5 MOD; subantennal space 2 MOD; T-III pit row well developed, deep in female; T-III not saddled, apex edentate, a tiny median notch in male, lateral edge simple; S-II spots large but separated by about 4 MOD; male S-VIII broadly rounded apically, genitalia (Fig. 111*b*).

**Hosts.** Unknown.

**Discussion.** This monobasic group is similar to the *elegans* group in most respects. Points of difference in the *caeruleiventris* group are the long malar space, rather long subantennal space, well-separated S-II spots, and broadly rounded rather than pointed S-VIII (Fig. 111*b*).

*Chrysis capensis* group (Fig. 104*e*)

**Diagnosis.** (Only male known): F-I l/w 2.5; face almost completely punctate, unusually broad; TFC absent; malar space 1.5 MOD; subantennal space 2.3 MOD; T-II sharply ridged; T-III with well-developed pit row; apex of T-III with four short, sharp teeth, lateral edge straight except for a slight basal convexity; S-II spots large, partly fused. Male terminalia: cuspis unusually broad, gonocoxa stout, tapering, apical half with long setae.



**Discussion.** This monotypic group from South Africa can be recognized by its rather large size (10mm long), no TFC on a broad head (Fig. 104e), rather long subantennal space, and sharply ridged T-II. We have examined four males only of *capensis*. Although he did not use it, Dahlbom (1854) validated *Nemophora* as a genus for *capensis*.

***Chrysis capitalis* group** (Figs 107p, 110m, and 112j)

**Diagnosis.** F-I l/w (male) 1.5, (female) 1.9–3.0; face microridged medially in a rather hollowed area; TFC modified M-like, and often strong; mid ocellar area mostly defined; mid ocellus lidded; malar space usually 1 MOD or less; subantennal space about 1.2 MOD; T-II with slight to well-developed ridge; T-III weakly saddled in female, pit row moderately impressed, pits medium large; T-III apex simple and convex, lateral edge simple; S-II spots obovate and nearly touching; male S-VIII broad basally but narrowed in distal half (Fig. 112j), gonocoxa stout but tapering almost to a point, bearing a special row of setae (Fig. 112j), digitus foliaceous or setose subapically (Fig. 109r), aedeagus minutely serrate medially (Fig. 110m).

**Hosts.** Unknown.

**Discussion.** The, approximately, 12 known species of this group are found in the Palaearctic, Oriental, and Afrotropical Regions. The bowed-out T-III apex is found uncommonly elsewhere in the genus, notably in the *elegans* group. However, in the latter, the apical rim is usually deflected, particularly in females, and it is nearly straight or incurved medially. Also, TFC is weakly developed in the *elegans* group but prominent in the *capitalis* group. A distinctive feature of the male terminalia is the foliaceous or setose digitus (Fig. 109r). The lobular setae in *capitalis* and other Afrotropical species are represented by bristle-like setae in the Oriental Region species, *abuensis*. In both cases the aedeagus has a minutely serrate area in an opposing position.

***Chrysis ceciliae* group** (Figs 104b, 107f, and 110f)

**Diagnosis.** F-I l/w 2.5–2.6; face unusually short (Fig. 104b), extensively microridged medially; TFC absent on rough brow; malar space 2.5 MOD; subantennal space 1.2 MOD; discoidal cell with outer veins faint; T-III not saddled, pit row not indented, pits isolated; apex of T-III simply rounded (Fig. 107f), lateral edge simple; S-II spots not defined; terminalia (Fig. 110f).

**Hosts** Unknown

**Discussion.** This peculiar monobasic group is one of the two that we know in which the outer veins of the discoidal cells may be weak. In other genera, such as *Chrysidea*, *Primeuchroeus*, and *Allochrysis*, this condition is not unusual. Other important features of *ceciliae* are the isolated pits of T-III followed by an edentate apex, rather long malar space, absence of TFC, and unusually short, broad head. The two groups of *Chrysis*, *ceciliae* and *amneris*, are easily distinguished by the four sharp teeth in the latter.

*Chrysis cerastes* group (Fig. 111n)

**Diagnosis.** F-I l/w male 0.1–1.2, a little longer than F-II but shorter than F-III; female 2.0–2.5; face with at most a little microridging in narrow median valley, face wedge-like, much broader at genae than at TFC (especially in females); TFC strong and rather sharp, biconvex; malar space 1.5–1.9 MOD; subantennal space 1.3–1.5 MOD; T-II sometimes weakly ridged; T-III somewhat saddled in female and with a prepit bulge, pit row well developed (weak medially in *komarowi*); apex of T-III with four rather sharp teeth; lateral edge simple; S-II spots large, elongate oval, well separated, or close. Male terminalia: S-VIII triangular, digitus a little shorter than cuspis, gonocoxa greatly narrowed in setose posterior half (Fig. 111n).

**Hosts.** Unknown.

**Discussion.** Other four-toothed groups with similarly short male F-I–II are: *antennalis*, *venusta*, *amneris*, *delicatula*, and *maculicornis*. Of these, the first two have the T-III apical margin double, and the third has an incomplete discoidal cell. The fourth has a longer malar space, and the fifth a shorter one. More distinctions among the Old World groups are given under the *delicatula* group. Although male antennae are dissimilar, the *taczanowskii* and *cerastes* groups may be closely related. In fact it is often necessary to have males available in order to place females in the proper group! About 20 species have been described, all from the Palaearctic except *praetexta* from the north-western Afrotropical Region (Senegal). Haupt (1956) created *Acanthochrysis* as a subgenus for *cerastes*.

*Chrysis comparata* group (Figs 105b, 109l, 110d, q, and 114j, k)

**Diagnosis.** F-I l/w usually 2–3; TFC absent to moderately developed; malar and subantennal spaces variable; pronotum longer than scutellum, usually deeply cleft; metanotum sometimes rough or cristate; propodeal angle short, stout, often blunt, straight or incurved behind; T-II sometimes weakly ridged; T-III apex with four short teeth or lobes, area from prepit bulge to apex (especially in female) characteristically down-curved, pit row usually distinct, often deep, sometimes hardly indented; T-III lateral edge simple, angled out, or with a tooth medially; S-II spots mostly large, close or fused, sometimes faint; gonocoxa stout, sometimes emarginate distally, bristles concentrated distally (Figs 110d and 114j).

**Hosts** The several rearings have all been from the megachilid bee genera *Anthidium* and *Rhodanthidium*.

**Discussion.** This is one of the largest groups of *Chrysis*, and about 80 species have been assigned to it. The principal characteristic is the formation of the female T-III, difficult to describe but easily recognizable by anyone who has carefully studied *Chrysis*. As given above, there is a rounded prepit bulge followed by the pit row, and a characteristic down-curved postpit area. The group occurs in the Holarctic, Ethiopian, and Neotropical Regions.

We have divided the large number of species into four subgroups: *comparata* s.s.,

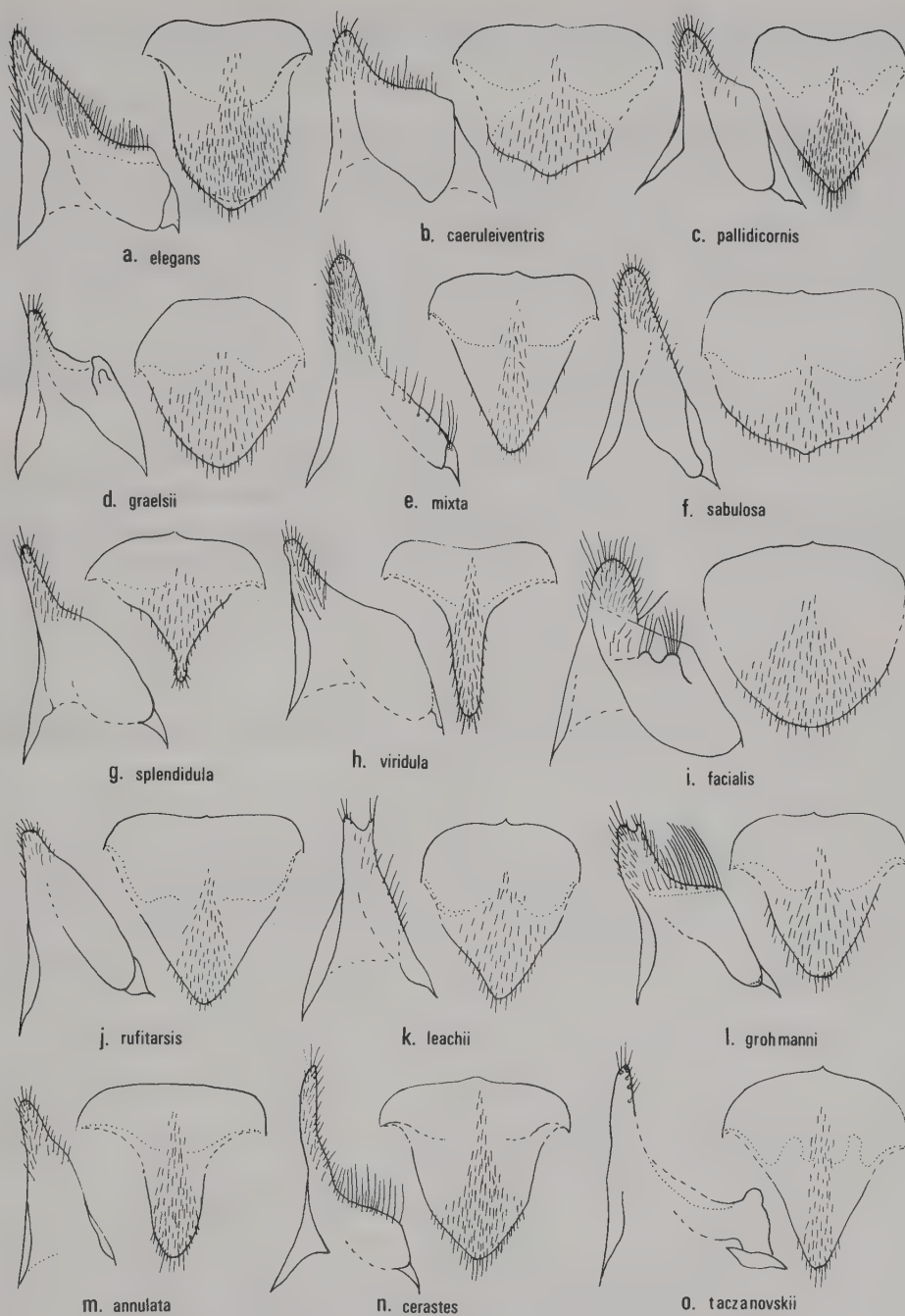


Fig. 111. *Chrysis*, male terminalia. (a)–(l) gonocoxal apex (left), S-VIII (right); (m)–(q) aedeagus. apex (left), S-VIII (right).

*scutellaris*, *gibba*, and *coloradica*, as treated below. Of these, *scutellaris* was treated as a separate group by Linsenmaier (1959a). Differences between subgroups are sometimes subtle.

***Chrysis comparata* group, typical subgroup (Fig. 110d, e)**

**Diagnosis.** F-I and pedicel usually dull; face usually medially polished; malar and subantennal spaces not more than 2 MOD; T-II red or partly so (at least in female); T-III with four teeth, acute or obtuse but usually pointed. Male terminalia: S-VIII usually broad and short (Fig. 110d), gonocoxa sometimes sharply emarginate distally (Fig. 110e).

**Hosts.** *Chrysis comparata* has been reared from nests of *Anthidium manicatum* L. (Linsenmaier 1959a). Mocsáry (1889) recorded *Osmia metallica* Lucas (= *ferruginea* Latr.) as the host of  *analis*.

**Discussion.** The combination of antennal colour, with the moderate malar and subantennal spaces are helpful differentiation features. Most females have the face medially polished, but it is microridged in *ramburi*, and rather completely punctate in *imperatrix*. The gonocoxa is emarginate in  *analis* and  *verna*. The subgroup is distributed widely in the Palearctic Region.

***Chrysis comparata* group, *scutellaris* subgroup**

**Diagnosis.** F-I and pedicel usually bright metallic blue to green, at least partly; face without significant medial microridging; malar and subantennal spaces less than 2 MOD; T-III often mostly red before pit row.

**Hosts.** Unknown.

**Discussion.** The *scutellaris* subgroup is Palearctic and Afrotropical in distribution. We have seen about 30 species. Of particular interest in the latter Region are the highly coloured forms *aurifascia*, *eximia*, *formosella*, and *mionii*. One species, *robillardi*, occurs on Madagascar. Main distinctions of the subgroup are the moderate malar space, and antennal colour.

***Chrysis comparata* group, *gibba* subgroup (Figs 105b, 109l, 110e, and 114k)**

**Diagnosis.** Face polished medially (Palearctic species), or rather completely punctate or microridged medially (Afrotropical and New World species); malar space or subantennal space (frequently both) 2.0 MOD or more.

**Hosts.** *Anthidium collectum* Huard is the host of *tripartita* (Grigarick and Stange 1968, Horning 1971).

**Discussion.** The long malar and/or subantennal space which characterize the subgroup are carried to an extreme in the Afrotropical *nasuta*, where these spaces are about 3.5 and 4.0 MOD respectively (Fig. 105b). Among the Afrotropical species, some have the female face rather completely punctate (*alecto*, *nasuta*, *semifumata*) and others have



it medially microridged (*campanai*, *dira*, *krebsi*, *bedychriformis*, *breviceps*, *indigens*). In the New World species, all have the face medially microridged. Palaearctic species have the abdomen mostly red (at least in females). Afrotropical and New World forms are all green to blue or purple.

Bischoff (1910) used two generic names for species of this subgroup. These were, *Pseudogonochrysis* for *guineensis* (= *dira*), and *Eurychrysis* for *stilbiceps* (= *nasuta*). A key to the New World species was given by Bohart (1985*b*).

***Chrysis comparata* group, *coloradica* subgroup** (Figs 110*q* and 114*j*)

**Diagnosis.** Pedicel metallic blue green (at least in female); face in female microridged medially (except polished in *vagabunda*); both malar and subantennal spaces less than 2 MOD; TFC absent.

**Hosts.** *Anthidium collectum* Huard has been reported as a host for *coloradica* and *vagabunda* (Krombein 1979, Bohart and Kimsey 1982), and *A. banningense* Cockerell for *florissanticola* (Krombein 1979).

**Discussion.** The absence of a TFC is a diagnostic character. The male of *coloradica* is remarkable in having a hirsute flagellum. In *vagabunda* F-I is shorter than usual, only 1.5–1.8 times breadth. The subgroup has a Nearctic distribution. A key to species in the group was given by Bohart and Kimsey (1982).

***Chrysis cuprata* group** (Figs 105*g* and 113*b*)

**Diagnosis.** F-I l/w 1.6–2.5, longer than F-II; face punctate to near middle, usually limiting any microridging, outer facial margins nearly parallel; TFC M-like, often quite weak; malar space 0.5–1.0 MOD, rarely 1.5 (*arabica*); subantennal space 2.0 MOD; clypeal apex at most weakly concave; mesopleuron somewhat bidentate or vertically furrowed as viewed obliquely from above; T-III pit row moderate to weak (some males); apex of T-III edentate, straight medially (males) or rounded out (females), a narrow membranous edge, lateral edge of T-III simple or with a slight basal convexity; S-II spots large, almost touching; male S-VIII usually broadly rounded posteriorly, terminalia (Fig. 113*b*).

**Hosts.** Unknown.

**Discussion.** About 10 species are referred to this group. Linsenmaier (1959*a*) placed *cuprata* and *procuprata* in his *versicolor* group. Most of the species he listed (*versicolor*, *corniger*, *innesi*, *bleuthgeni*) we treat as *Spintharina*. According to the holotype of *aeraria* in Budapest, it is in the *bihamata* group. Half of the species we have included are Palaearctic (southern Europe, North Africa, Middle East). The others are Afrotropical (Senegal, South Africa). Among related edentate species groups, the moderate to short malar space and furrowed mesopleuron are distinctive. These features, coupled with the nearly rectangular face below the brow (Fig. 105*g*) create a special look.

An item of interest is the pale F-I and/or F-II in males of *cuprata*, *cupratoides*, and *procuprata*. A similar bicoloured condition, involving basal flagellomeres only, has been noted in some males of *Spintharina* and *Argochrysis*.

***Chrysis delicatula* group** (Figs 104a, 106r, and 113l)

**Diagnosis.** F-I l/w male 0.7–1.3, a little longer than F-II but shorter than F-III, female 2.3–2.5; face microridged in median half, not wedge-like; TFC distinct, on a slightly raised platform, recurved below; malar space 2.5–4.0 MOD; subantennal space about 1.5 MOD; T-III weakly saddled in female, pit row distinct; apex of T-III with four short teeth; lateral edge simple; S-II spots widely separated or rather close; male S-VIII short but narrowed in apical half, digitus shorter than cuspis, gonocoxa abruptly narrowed in setose apical third (Fig. 113l).

**Hosts.** Unknown.

**Discussion.** The principal similarity among the *delicatula*, *maculicornis*, and *cerastes* groups is the short male F-I–II (Fig. 106r). However, they may not be closely related. In the first group the malar space ranges from 2.5–4.0 MOD, in the second from 0.2–1.5, and in the third from 1.6–1.9. In addition the face is rather wedge-like in the *cerastes* group, especially in females (Fig. 104a), and TFC is quite prominent. In the *delicatula* group TFC is not so sharp, it is on a prominence, and is recurved below. This group of several species seems to be found only in the Afrotropical Region, where *delicatula*, at least, is quite abundant.

***Chrysis ehrenbergi* group** (Figs 2f, g, 108m, n, and 113m)

**Diagnosis.** F-I l/w male 1.1–1.5, female 2.0; face without microridging, densely silver setose in male, polished medially and with scattered punctures in female; head venter without process at end of preoccipital carina (female); female head greatly enlarged and with mandible obliquely broadened near apex; TFC absent; malar space 1.5–1.7 MOD; subantennal space about 2 MOD; eye–genal carina space 0–0.2 MOD; pronotal humeral angle projecting outward in female; T-III pit row weak, pits isolated medially, no prepit bulge; apex of T-III narrow and with four sharp teeth, lateral edge of T-III simple or a little angled out beyond middle; S-II large and confluent or nearly so; male S-VIII nearly triangular, gonocoxa (Fig. 113m).

**Hosts.** Unknown.

**Discussion** *Chrysis ehrenbergi* is the type of *Platycelia* Dahlbom, treated as a subgenus by Linsenmaier (1959a), including also *megacephala* and *sabulosa*. Several character discrepancies have led us to consider *sabulosa* as representative of a separate group. In the *ehrenbergi* group (including *megacephala* which we know only from the description), the female head is enlarged with mandibles subapically broadened (Fig. 108m, n), the female face is mostly polished medially, neither sex has a preoccipital tooth (nearly universal in *Chrysis*), TFC is absent, T-III has only four teeth, and male S-VIII is nearly triangular. All of these features are different in the *sabulosa* group.

The *ebrenbergi* group of about five species is Palaearctic: Israel, North Africa, s USSR.

***Chrysis elegans* group** (Figs 107*d*, 109*u*, and 111*a*)

**Diagnosis.** F-I l/w 1.7–2.5; face usually polished medially, especially in females; TFC weak, M-like, appressed or faint; malar space 0.5–1.0 MOD; subantennal space 1.2–1.5 MOD; eye–genal carina space 0.3–0.7 MOD; mesopleuron (scrobal sulcus deep) rather simple; T-III pit row not large but usually deep; T-III apex simple (Fig. 107*d*), somewhat down-curved (especially in female), lateral edge simple; S-II spots often quite large and joining anteriorly, sometimes a little separated. Male terminalia: S-VIII broad, with a dull or sharp point, cuspis usually quite hirsute, digitus usually short (Fig. 109*u*); gonocoxa tapering, inner edge with rather long setae (Fig. 111*a*).

**Hosts.** *Osmia cristata* Fonsc. has been reported as a host for *elegans*, a masarid for *tingitana* (Linsenmaier 1959*a*), and *Rhodanthidium caturigense* (Giraud) for *emarginatula* (Mocsáry 1889).

**Discussion.** Linsenmaier (1959*a*) treated *emarginatula* as a group of two species. Although they are a little outside the norm, separating them seems to be drawing too fine a line. On the other hand, since *tingitana* (in Linsenmaier's *emarginatula* group) has been recorded as parasitizing a masarid, there may be some justification for separation.

The principal separational point for the group is the simple T-III apex which (especially in females) is somewhat down-curved, much as in some *Chrysura*. In many of the *elegans* group the metanotum and propodeum are dark blue, in contrast to the scutellar colour. In species such as *angustata*, *castillana*, *elegans*, *lepida*, and *tingitana* the female face is medially polished. Others, such as *emarginatula* and *mesochlora*, have the female face medially microridged. Approximately 15 described species occur in the Palaearctic Region.

***Chrysis exornata* group**

**Diagnosis.** F-I (female only known) l/w 2.0–2.5; face microridged in middle two-fifths to half; TFC rather strong and nearly straight, situated rather low on face; malar space about 2 MOD; subantennal space 1 MOD; propodeal angle blunt and incurved behind or pointed and slightly convex behind near apex; T-III pit row well developed; T-III apex with a pair of protruding median teeth and a weak apicolateral angle, lateral edge slightly angled near distal two-thirds, S-II spots large and reaching mid-line.

**Hosts.** Unknown.

**Discussion.** The microridged face and protruding middle apex of T-III seem to relate this group to the *leachii* subgroup of *succincta*. However, in the present group TFC is strongly developed, and T-III has a pair of distinct teeth. The group is known only from South Africa.

*Chrysis exsecata* group (Figs 104g and 107b)

**Diagnosis.** F-I l/w male 2.2–3.0, female 3; face medially microridged; TFC M-like (Fig. 104g), sometimes indistinct; mid ocellar area usually partly defined; malar space 2.0–3.5 MOD; subantennal space 1.3–2.0 MOD; clypeal apex at most slightly concave; T-III pit row well developed, sometimes deep; apex of T-III edentate, nearly straight, or incised medially in male (Fig. 107b), rounded out or angularly notched at middle in female; lateral edge of T-III simple; S-II spots narrowly separated or fused. Male terminalia: S-VIII somewhat narrowed in distal half or subtriangular, gonocoxa strongly narrowed and with inner setae on posterior half.

**Hosts.** Unknown.

**Discussion.** The, approximately, 10 species assigned to this group occur in the southern part of the Afrotropical Region. All are small (4.5–7.0 mm long) and a few are highly coloured (*auronitens*). Edney (1952) placed most of the species in the subgenus *Gonochrysis*, which we do not recognize.

The species of the *exsecata* group are reminiscent of the Nearctic *Ceratochrysis*. Some species of both have a long F-I, medially microridged face, and edentate T-III. However, *exsecata* and its relatives have a consistently different gonocoxa, and no vertex swellings (present in many *Ceratochrysis*). From related Palaearctic groups of edentate species, differentiating characters in combination are the rather long F-I (l/w 2.2–3.0), long malar space (2.0–3.5 MOD), moderately incurved clypeal apex, and, in females of two species, an apicomediaally notched T-III (*exsecata*, *capae*).

*Chrysis extensa* group (Figs 105i, 107g, 109i, and 113a)

**Diagnosis.** F-I l/w about 4.5; face not microridged medially; TFC partial and M-like; malar space in male 1.8 MOD, in female 3.2 MOD; subantennal space 1.2 MOD; T-III 1.5 (male) to 2.0 times as long as broad, pit row large, pits elongate; T-III saddled in female, apex edentate and biconvex, lateral edge simple; S-II spots long, oval, and somewhat separated; male S-VIII globular, distal part small; gonocoxa extremely slender in distal half, cuspis emarginate within and club-like (Figs 109i and 113a).

**Hosts.** Unknown.

**Discussion.** This monotypical genus has many unusual features in addition to its generally slender appearance. F-I is quite long and slender (Fig. 105i), and T-III has a characteristic shape (Fig. 107g), as do the male terminalia (Figs 109i and 113a). The cuspis in *Chrysis* varies from slender to stout, and with long or short bristles. However, in *extensa* the shape is unique. The two known specimens are from South Africa's Cape Province.

*Chrysis facialis* group (Fig. 111i)

**Diagnosis.** F-I l/w male 2.4, female 2.8; face (female) microridged or polished medially, genae (female) nearly parallel; TFC absent or weak and an inverted broad U; malar space (male) 2.4 MOD, (female) 3.0 MOD; subantennal space 1.6 MOD; T-III



pit row not impressed medially, more so laterally in female; T-III apex with four stout and pointed teeth set rather close together, T-III lateral edge straight; S-II spots large, nearly touching; male S-VIII broad, short, almost semicircular; gonocoxa with long bristles distally and from two median tubercles (Fig. 111i).

**Hosts.** Unknown.

**Discussion.** The half dozen known species are all Palaearctic. In his key to groups, Linsenmaier (1959a) separated *facialis* primarily on the absence of a TFC. Unfortunately, some specimens have it weak but distinct. Male terminalia are unique (Fig. 111i), but external features might place the group near *cerastes* in the female, closest to *ambigua* and *mutata*. However, in the *facialis* group the head is broad below, and the malar space is longer. Also, TFC is incomplete or absent, and the T-III teeth are closer together.

### *Chrysis graelsii* group (Fig. 111d)

**Diagnosis.** F-I hardly longer than F-II in either sex, often shorter, male F-I l/w 1.5–1.8, female F-I l/w 1.6–1.9; face with cross-ridging or microridging medially; TFC strong, arc-like, or biconvex; mid ocellar area sometimes well defined; mid ocellus lidded; malar space less than 1 MOD; subantennal space 1.3–1.6 MOD; T-II with a weak to moderate ridge which may appear on T-III also; T-III with pit row well developed; apex of T-III with four short but pointed teeth, lateral edge of T-III simple; S-II spots large, separated by 1.0–1.5 MOD; male S-VIII stout, rounded posteriorly; gonocoxa stout but tapering almost to a point, a hump or projection at middle of inner edge (Fig. 111d), cuspis stoutly subtruncate.

**Hosts.** Linsenmaier (1959a) said hosts appear to be *Osmia*, and discounted the idea that *Paragymnomerus spiricornis* (Spinola) might be involved. However, Grandi (1961) gave *Odynerus reniformis* Gmelin as host for *graelsii*.

**Discussion.** Recognition features are the short F-I in both sexes (not invariable), strong TFC which is rather simply convex or slightly biconvex and extends a considerable distance along the eye margin, lidded mid ocellus, subantennal space longer than short malar space, short T-II teeth, and rather distinctive male terminalia. Some 12 species have been referred to this group which can be considered Palaearctic. We have seen specimens of all but *opulenta*. Except for *opulenta* and *costae*, females and some males have the tooth-bearing post-pit area of T-III green to purple, in contrast to the prepit area. In *graelsii*, *valeziana*, and *perezi* female F-I is about as long as F-II, but in *buechneri*, *remota*, and *costae* at least, female F-I is shorter than F-II. This latter situation is quite unusual in *Chrysis*. This group was named from *sybarita* by Linsenmaier (1959a), but that species is a synonym of *graelsii* (Invrea 1948). Refer to discussion under the *taczanovskii* group for possible relationships.

### *Chrysis beymonsi* group (Figs 104j, 107k, and 108g)

**Diagnosis.** F-I l/w (female, male unknown) 2.3; face almost completely punctate; TFC

strong medially, nearly straight; mid ocellar area distinct (Fig. 104j); mid ocellus lidded; malar space 1.5 MOD; subantennal space 0.9 MOD; pronotum sharply carinate laterally; mesopleuron subdentate; metanotum posteriorly spatulate; propodeal angle long, sharp, and lobed behind; T-III pit row distinct beneath overhanging prepit bulge; T-III apex with four sharp but short teeth (Fig. 107k); T-III lateral edge with a denticle midway (Fig. 108g); S-II spots round, narrowly separated.

**Hosts.** Unknown.

**Discussion.** Differentiating characters are the laterally carinate pronotum, lateral denticle of T-III (as in *lincea*), spatulate metanotum, and defined mid ocellar area. *Chrysis heymonsi* occurs in the Afrotropical Region: central Africa from Spanish Guinea to Tanzania.

### *Chrysis hydropica* group (Figs 104i and 113i)

**Diagnosis.** (based on males only). F-I l/w about 4; face microridged medially; clypeus emarginate at apex; TFC distinct, a broad inverted U; malar space 3 MOD; subantennal space 2 MOD; propodeal angle short, blunt, incurved behind; T-III pit row deep, pits large; apex of T-III straight or rounded out, no lateral corners; lateral edge of T-III simple; S-II spots quite large, fused. Male terminalia (*tumens*): S-VIII a somewhat lengthened triangle, gonocoxa broad basally but tapering almost to a point, inner edge setose in apical third (Fig. 113i).

**Hosts.** Unknown.

**Discussion.** The three species of the group are Palaearctic: southern France to North Africa. Characteristics are the long F-I (Fig. 104i), distinct TFC, rather long malar and subantennal spaces, deep T-III pit row, edentate T-III apex, and large, as well as fused, S-II spots. The incised clypeal apex occurs also in the *rubricata* group, but in *rubricata* males F-I l/w is only 1.5 and considerably shorter than F-II. In both sexes F-I is less than twice as long as the pedicel (more than twice in *hydropica* group). See also the discussion under the *millenaris* group (p.354).

### *Chrysis ignita* group (Fig. 110a)

**Diagnosis.** F-I l/w (male) usually about 2, rarely 1.5, (female) 2 or more; face often broad, with or without medial microridging; TFC well developed, usually an inverted broad U or biconvex; malar space 1–4 MOD, nearly always longer than subantennal space: 1–1.5 MOD; pronotum shorter than scutellum; T-II nearly always with a well-developed and sharp median ridge which (females) may also occur on T-III; T-III pit row usually well developed; T-III apex with four well-developed simple teeth (quite weak in *japonica*), T-III lateral edge simple; S-VIII spots usually well separated, sometimes nearly touching; male S-VIII subtriangular with rather long setae (Fig. 110a); gonocoxa tapering, inner slanting surface with long setae (Fig. 110a).

**Hosts.** A wide range of hosts in the Sphecidae and Eumenidae have been reported. As an example, Mocsáry (1889) listed hosts for *ignita* in the sphecid genera *Philanthus*

and *Cerceris*, and in the eumenid genera *Eumenes*, *Delta*, *Ancistrocerus*, *Gynmomerus*, and *Symmorphus*.

**Discussion.** The *ignita* group contains the generotype, *ignita*, and is the largest group in *Chrysis* with about 100 currently assigned species, and dozens of more or less weakly circumscribed subspecies. They are practically confined to the Holarctic, Neotropical, and Afrotropical Regions. In such a large entity there is bound to be considerable diversity. The homogeneity of the group is therefore remarkable. Exceptional species do not obscure the general features of the group: long F-I, distinct inverted-U or biconvex TFC, short pronotum, simple mesopleuron, metanotum, and lateral edge of T-III, well-developed median ridge on T-III, well-developed pit row, four (pointed) T-III teeth, and rather distinctive S-VIII and gonocoxa. Species from the Afrotropical Region are a little different from the Holarctic ones but generally fit the basic characters. The rather numerous subspecies of *fulgida*, *ignita*, *longula*, *mediata*, and *rutiliventris* need a careful review. Some of these may require species status, but many others should be relegated to minor forms within a species and the names synonymized.

New World species of the *ignita* group were treated by Bohart and Kimsey (1982) as the *coerulans* (= *nitidula*) group. None of these have the abdominal terga red, entirely or in part, contrary to the rule in the Palearctic fauna. The Afrotropical species lack red as well.

#### *Chrysis impostor* group (Fig. 113o)

**Diagnosis.** F-I l/w 2–3; face almost completely punctate; TFC projecting from a strong brow, straight overall but with three small backward rami; mid ocellar area mostly defined; malar space 1.5–2.0 MOD; subantennal space 1.0–1.5 MOD; metanotum bulging or produced upward into a keel-like tooth; propodeal angle sharp, straight, or incurved behind; apex not pointing forward; T-II with a weak to fairly distinct ridge; T-III pit row developed but not deeply indented; T-III apex with four simple sharp teeth, lateral edge of T-III simple; S-II spots rounded or oblong and well separated, or basal and transverse; male S-VIII broad, rounded or bidentate distally; gonocoxa triangular and with long bristles on slanting inner edge (Fig. 113o).

**Hosts.** Unknown.

**Discussion.** In several respects this group is like that of *ignita*. However, the somewhat gibbous metanotum, posterior TFC rami, and distally rounded gonocoxa are important points of difference. All of the species are Australian, and they can be separated from those of the like-wise endemic *interceptor* group by the medial S-II spots of the latter. A key to species of the group was given by Bohart (1985a).

#### *Chrysis inaequalis* group (Figs 107q, 108b, 109k, 110g)

**Diagnosis.** F-I l/w 3–4; face hollow and deep, medial half finely ridged; crescentic TFC strongly and sharply projecting; malar space about 2 MOD; subantennal 1 MOD; mesopleuron bidentate and somewhat bulging; propodeal angle large, sharp, incurved

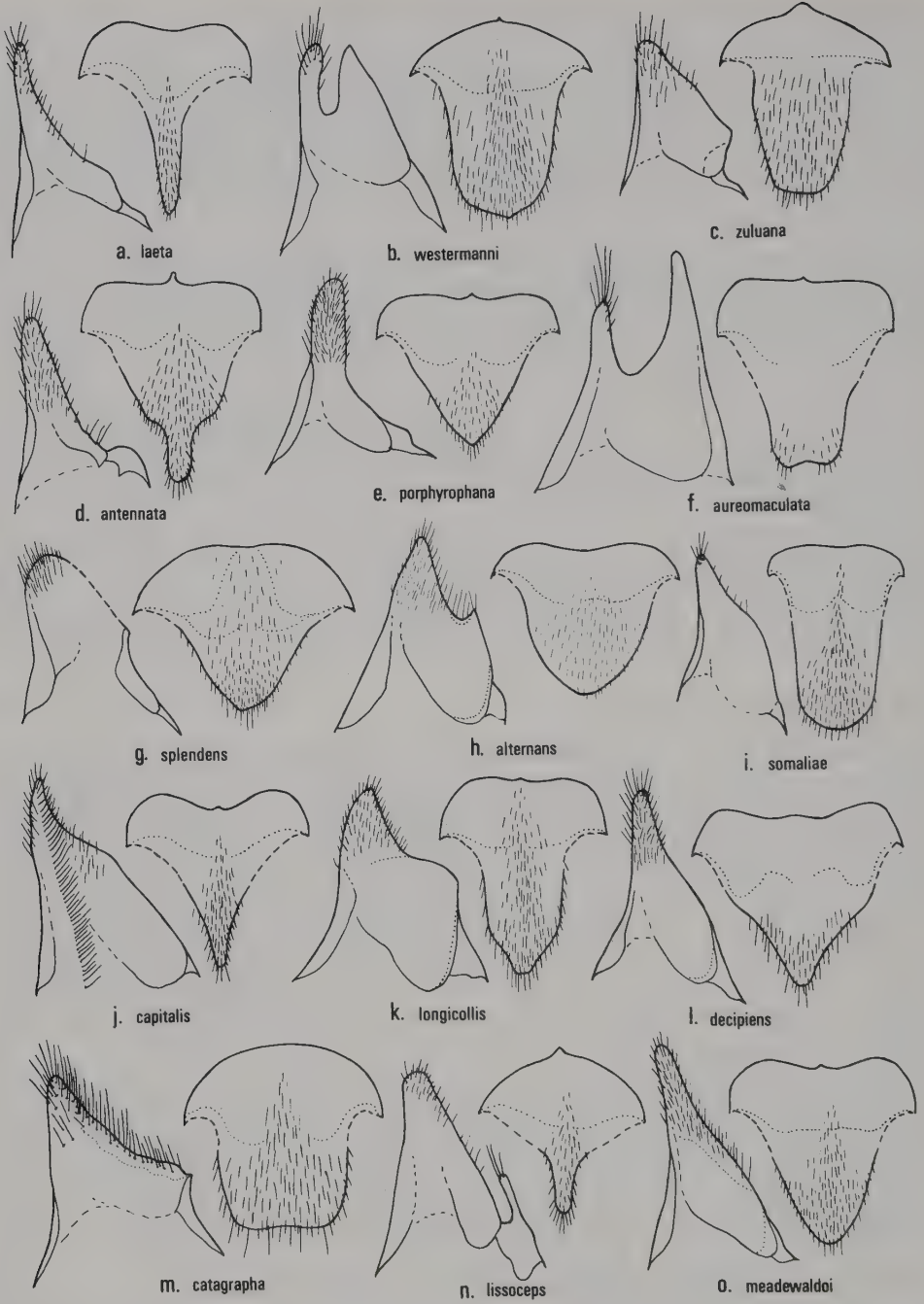


Fig. 112. *Chrysis*, male terminalia. Gonocoxal apex (left), S-VIII (right).



behind; T-II—III with a sharp median carina (Fig. 107q); T-III with well-developed pit row; T-III apex with four single sharp teeth, rather close together; lateral edge convex in basal fourth; S-II spots indistinct, basal, fused or nearly so; male S-VIII elongate triangular; gonocoxa narrowly cylindrical in posterior half, cuspis and digitus distinctive (Figs 108k, and 109g).

**Hosts.** Unknown.

**Discussion.** The long F-I, deep facial hollow surmounted by a sharp crescentic TFC, bidentate mesopleuron, and carinate T-II—III combine to make the group unique. Three Palaearctic species are known: *inaequalis*, *mysticalis*, and *placida*. Linsenmaier (1959a) placed the group in subgenus *Pentachrysis*, along with the *amoena* group and South American *grandis* group, on the basis of similarities in T-III. We treat *Pentachrysis* as a distinct genus with *amoena* as its generotype. It has a distinct fifth tooth on T-III, and quite different male terminalia. The *grandis* group lacks the unusually long F-I of *inaequalis*.

#### *Chrysis insolita* group (Figs 105f, 107r, and 108i)

**Diagnosis.** F-I l/w (female only known) 2; face completely punctate; TFC M-like with posterior rami defining mid ocellar area (Fig. 105f); mid ocellus lidded; malar space 0.3 MOD; subantennal space 1.9 MOD; pronotum 1.5 times as long as scutellum; mesopleuron with scrobal sulcus narrow and deep; T-III pit row indented laterally but nearly effaced medially; T-III with a small v-like medial indentation, flanked by two short, sharp teeth (Fig. 107r), lateral edge slightly irregular with a sharp tooth at basal third and a slight basal swelling (Fig. 108i); S-II spots long oval, oblique, separated by about 1.2 MOD.

**Hosts.** Unknown.

**Discussion.** The only species of the group (*insolita*) is known from eight females collected in Ethiopia and Nigeria. They can be immediately recognized by the peculiar T-III described above. *Chrysis insolita* is a rather large (13–14 mm.), green and slightly blue species. The quite short malar space, lidded mid ocellus, and long pronotum are additional characters of importance.

#### *Chrysis interceptor* group (Fig. 113n)

**Diagnosis.** F-I l/w (male) 1.6–2.0, (female) 2.0–2.5; face almost completely punctate; TFC projecting from a strong, medially indented brow, essentially straight or a little down-curved, medially angled back; mid ocellar area at most weakly defined; mid ocellus thinly lidded; malar space 1.0–1.5 MOD, subantennal space 1.0 MOD; eye–genal carina space 0.3–1.0 MOD; propodeal angle somewhat convex behind and often with tip pointing forward; T-II sometimes weakly ridged; T-III pit row weakly indented, pits often obsolete; T-III apex with four stout or slender, sharp teeth, lateral edge of T-III simple; S-II spots semicircular, medial, contiguous; male S-VIII subtrian-

gular, pointed distally; gonocoxa subtriangular, longer bristles, concentrated posteriorly (Fig. 113n).

**Hosts.** Unknown.

**Discussion.** This indigenous Australian group of five described species is characterized by the medial S-II spot(s), somewhat posteriorly convex propodeal angle, and the unusually weak pit row of T-III. The brow is more sharply indented than in the *impostor* group, and posterior rami of TFC are absent or weak. A key to the species was given by Bohart (1985a).

***Chrysis lincea* group** (Figs 106u, 108o, p, and 113f)

**Diagnosis.** F-I l/w 1.0, about half as long as F-II; face rather completely punctate, somewhat transversely striatiform; TFC consisting mainly of a pair of sublateral tubercles; mid ocellar area depressed but weakly defined, interocellar area swollen; malar space about 0.5 MOD; subantennal space 1.2 MOD; pronotum shorter (medially) than scutellum but extending forward laterally into an acute angle; mesopleuron flattened and somewhat polished (Fig. 108o); scrobal area and below produced into a large, downward-pointing tooth; metanotum projecting posteriorly into a triangular mucro, as broad as long, or longer, topped by a partial longitudinal carina (Fig. 108p); propodeal angle strong, a little lobate behind; T-II with a smooth, sometimes raised ridge; T-III saddled, pit row distinct behind slightly overlapping bulge; T-III apex with four simple, stout, usually sharp teeth, lateral edge of T-III with a medial denticle; S-II spots obovate, separated by 0–3 MOD; male S-VIII unusually broad basally; gonocoxa with posterior half somewhat excavated and bearing many long setae (Fig. 113f).

**Hosts.** *Sceliphron* mud nest wasps (Sphecidae) have been identified as hosts on specimen labels.

**Discussion.** This group is easily recognized by the extraordinary mesopleural projection, metanotal mucro, and lateral denticle of T-III (as in Fig. 108g). The dentiform TFC remnants and reduced F-I are also remarkable. The latter structure gave rise to the generic name, *Pyria*, but the same feature occurs in several other groups, notably *oculata*. The lateral denticle of T-III is found also in *beymonsi*, and the polished mesopleuron in *canaliculata*. These species do not seem to be close to the *lincea* group. Two of the known species, *gheudei* (Madagascar) and *laevicollis* (Philippines), appear to be endemic. The third one (*lincea*) may have originated in the Afrotropical Region as it was described from Sierra Leone by Linnaeus (1775), but it has spread, probably through commerce, to the Palaearctic (Egypt, Cyprus), and Australian Regions (Australia, New Guinea).

***Chrysis longicollis* group** (Figs 108f, 109j, and 112k)

**Diagnosis.** F-I l/w 3; face microridged medially; TFC appressed, M-like; mid ocellar area rather well defined; mid ocellus lidded; malar space 2 MOD; subantennal space

1 MOD; pronotum considerably longer than scutellum; mesopleuron with scrobal sulcus quite weak; T-III pit row weakly indented medially; apex of T-III with four short, sharp teeth, lateral edge with a sharp tooth or angle at distal third, followed by an emargination (Fig. 108f); S-II spots widely separated. Male terminalia: S-VIII elongate triangular, bristles moderately long, digitus longer than broadly rounded cuspis, gonocoxa stout, pointed, setose in posterior fourth (Figs 109j and 112k).

**Hosts.** Unknown.

**Discussion.** This monotypic Afrotropical group resembles *alternans* in the emarginate lateral edge of T-III. However, the long pronotum places it closer to the *comparata* and *meadewaldoi* groups. The *longicollis* group differs from the former by the sharp lateral emargination of T-III, and from the latter by longer F-I and medially microridged face.

### *Chrysis maculicornis* group (Fig. 111m)

**Diagnosis.** F-I l/w (male) 1.0–1.4 and a little longer than F-II but shorter than F-III, (female) about 2; face not particularly wedge-like, sometimes microridged medially; TFC well developed, biconvex, not always sharp; mid ocellar area sometimes defined; mid ocellus sometimes lidded; malar space 0.2–1.3; subantennal space 0.9–1.2; T-II sometimes with a weak, smooth ridge; T-III a little saddled in females before a low prepit bulge; pit row usually well developed, sometimes weak medially; apex of T-III with four sharp teeth, lateral edge simple; male S-VIII narrowed posteriorly, sometimes quite slender; gonocoxa gradually narrowed towards apex (Fig. 111m).

**Hosts.** Unknown.

**Discussion.** Linsenmaier (1959a) placed *annulata* and its relatives in the *cerastes* group. After examination of many more species than were available to him, we have concluded that *cerastes* and relatives should be separated on the basis of the longer malar space, wedge-like face, longer female F-I, and generally stronger TFC. Several species of the *maculicornis* group have the male flagellum beyond F-II pale red and spotted beneath. The group is Palaearctic and includes about 15 described species.

Semenov (1954a) proposed *Glossochrysis* as a subgenus for this group, of which *svetlana* is the generotype. Both *svetlana* and *tatjanae* have the pit row weak medially, but this appears to be a species characteristic only.

### *Chrysis maindroni* group (Figs 105a and 112n)

**Diagnosis.** F-I l/w 2.2–2.9; face unusually long, medially polished or punctate, and weakly cross-ridged (Fig. 105a); TFC absent on a prominent brow; lateral ocellus usually 1 MOD from eye, postocellar area (seen from above) at least as long as ocellar triangle breadth; malar space 3.5–6.0 MOD; subantennal space 1.0–1.6 MOD; genal carina sometimes indistinct or absent; mesopleuron with scrobal sulcus incomplete to practically absent; thorax unusually long and slender; T-III pit row often weak or broken, female profile at end of T-III roof-like; T-III apex with four simple (female),



obtuse, and pointed, or (male) acute and sharp, teeth, lateral edge of T-III simple; S-II spots long oval, separated, close or fused. Male terminalia (Fig. 112*n*): S-VIII somewhat elongate, narrowed and with long bristles posteriorly; gonocoxa bristled and subtruncate posteriorly, sub-basally with an inner finger-like projection with a few long setae.

**Hosts.** Unknown.

**Discussion.** Based on male terminalia, at least four Afrotropical Region species belong to this group. However, perhaps six other small and slender Afrotropical species might be referred to it but this cannot be verified until males are known. The complex gonocoxa is unique. Other characters of significance, in addition to the cylindric body, are the absence of TFC on the prominent brow, long malar space, obsolete scrobal sulcus, unusually sharp teeth of male T-III, and roof-like form of female T-III. The lateral ocellus is usually close to the compound eye, but in *laticlypeata* it is 2 MOD from the eye.

#### *Chrysis meadewaldoi* group (Fig. 112*o*)

**Diagnosis.** F-I l/w 1.2–1.8; face punctate overall, not microridged; TFC rather strong, M-like; mid ocellar area distinct; mid ocellus lidded; malar space and subantennal space each 2.5 MOD; genal carina 0.3 MOD from eye; pronotum longer than scutellum; metanotum a little depressed medially; T-II with a smooth median line but not ridged; T-III prepit bulge and pit row well developed; apex of T-III with four short teeth, lateral edge with a sharp angle beyond middle, followed by an emargination; S-II spots separated by 2–3 MOD. Male terminalia: S-VIII triangular, setae short, digitus shorter than cuspis, gonocoxa slender, setose over most of posterior half (Fig. 112*o*).

**Hosts.** Unknown.

**Discussion.** The two species of the group (*lesnei* and *meadewaldoi*) are rather large (8.5–10 mm long), green to blue *Chrysis* occurring in the Afrotropical Region. In addition to the lateral emargination of T-III, they are recognized by the rather short and stout F-I, long malar and subantennal spaces, lidded mid ocellus, long pronotum, and separated spots of S-II.

#### *Chrysis millenaris* group (Fig. 110*i*)

**Diagnosis.** F-I l/w 2–3; face microridged medially; TFC practically absent, sometimes indicated medially; malar space 2.6 MOD; subantennal space 1.5–1.7 MOD; T-III pit row distinct, prepit bulge low or absent; apex of T-III without teeth or lateral corners, lateral edge of T-III simple; S-II spots large, almost fused; male S-VIII triangular or long triangular; gonocoxa stout or narrow posteriorly, setae at apex (Fig. 110*i*).

**Hosts.** According to Linsenmaier (1959*a*) *basalis* is a parasite of *Stenancistrocerus* ('*Odynerus*') *atropos* (Lepeletier), and *millenaris* may attack *Osmia bidentata* Morawitz.

**Discussion.** Linsenmaier (1959*a*) placed six species in his *millenaris* group, all



Palearctic and three of them North African. Although we have followed his decisions, the character summary above is based on the two species studied, *basalis* and *millenaris*. In spite of the general agreement in characters, these do not look very alike, and their male terminalia and host relationships differ.

Many of the characters, such as the edentate T-III, long malar space, and microridged face, are found in the *hydropica* group. However, the latter has F-I quite long and TFC distinct. There are other forms with T-III edentate. Of these, the *cuprata* group has a shorter malar space. The *rubricata* group has male F-I l/w about 1.6 but considerably shorter than F-II (l/w 3). Both sexes of *rubricata* have the clypeal apex rather sharply emarginate. Finally, the *exsecata* group species are edentate also, but females have T-III slightly to sharply emarginate medially and TFC in both sexes is M-like (sometimes a little incomplete). The lectotype of *variipes* places this species in the group with some doubt.

### *Chrysis oculata* group (Figs 106*v* and 113*e*)

**Diagnosis.** F-I l/w 0.5–1.0 in both sexes, about half as long as F-II (Fig. 106*v*); face mostly punctate; TFC broadly M-like, a little angled up medially; mid ocellar area defined; mid ocellus lidded; malar space and subantennal space about 1 MOD; mesopleuron with a large, downwardly directed tooth and three or four subteeth; metanotum with a raised and irregular double ridge or a U-shaped posterior mucro; propodeal angle large, strongly lobed ventrally; T-III pit row well developed; apex of T-III with six double, pointed to sharp teeth, lateral edge simple, (exceptionally (*oxyacantha*) T-II apex is seven-toothed plus a lateral tooth midway); S-II spots transverse, close or fused; male S-VIII trianguloid, a little narrowed in posterior half; genitalia (Fig. 113*e*).

**Hosts.** Unknown.

**Discussion.** The seven species of this group (including *thailandina*) are all found in the Palearctic and Oriental Regions. *Chrysis stilboides* occurs also in the Afrotropical Region. Recognition features are the greatly reduced F-I in both sexes, large mesopleural tooth with associated denticles, short malar space and pronotum, and six double-edged teeth (rarely seven) at the apex of T-III. Similar features occur in other groups, but not in combination.

### *Chrysis oxygona* group (Figs 104*k*, 107*j*, and 112*m*)

**Diagnosis.** F-I l/w 2–3; face medially polished (Fig. 104*k*), weakly microridged, or completely punctate; TFC strong, sometimes irregular, a very broad inverted-U; mid ocellar area defined or not so; mid ocellus lidded; malar space and subantennal space 1.6–1.8 MOD; mesopleuron subdentate; scrobal sulcus areolate; propodeal angle large, sharp, backward-pointing at tip, a slight convexity behind but overall incurved; T-II with a strong ridge extending onto T-III; pit row of T-III well developed beneath

overhanging prepit bulge; apex of T-III with four simple, sharp teeth and sometimes a median denticle (Fig. 107j), lateral edge of T-III simple or bowed out at side of tooth row; S-II spots large, contiguous; male S-VIII broadly trianguloid or truncate posteriorly; terminalia (Fig. 112m).

**Hosts.** Unknown.

**Discussion.** This small group of species is known from South Africa. They are medium large (8–10 mm long), coarsely punctate, and often have a minute median denticle on the T-III apex. Other features are the strong TFC, lidded mid ocellus, subdentate and extensively areolate lower mesopleuron, ridged T-III, and large S-II spots.

Bischoff (1910) treated the group under the genus *Pseudotetrachrysis* with *oxygona* as the type.

### *Chrysis pallidicornis* group (Figs 104l and 111c)

**Diagnosis.** F-I l/w 1.5–2.0; face rather completely punctate, all silvery setose in male, nearly all in female; TFC variable, sometimes absent, irregular, or broadly M-like; malar space 1.5–2.0 MOD; subantennal space 2.0–3.0 MOD (Fig. 104l); eye-genal carina space about 0.2 MOD; pronotum nearly as long as scutellum or longer; T-II sometimes weakly ridged; T-III with pit row weak, hardly impressed; apex of T-III with four simple, sharp, acute teeth placed close together, lateral edge of T-III usually angled out obtusely, at or beyond middle; S-II spots ovoid, separated or close; male S-VIII stout, posteriorly with a rounded point; gonocoxa stout, setose in posterior half (Fig. 111c).

**Hosts.** Unknown.

**Discussion.** The dozen species of the group known to us are all in the Palearctic Region. They are of medium size (6–8 mm long), and recognition characters include the long subantennal space (Fig. 104l), all silvery male face, tiny eye-genal carina space, weak T-II pit row, and four sharp T-III teeth. Nearly all species have the antennal sockets close together (Fig. 104l). Of the species studied, *eatoni*, *humeralis*, *pallidicornis*, *pilosolateralis*, and *viridirosea* all have an obtuse angle in front of the tooth row laterally. Some of the others may have it also. In *gujaratica*, *manicata*, *pharaonum*, and *syrdarica* the same area is simply convex.

### *Chrysis porphyrophana* group (Fig. 112e)

**Diagnosis.** F-I l/w (male) 1.0, longer than F-II but both shorter than F-III, (female) 1.3 and longer than F-II or F-III; face (male) all silvery setose, (female) polished in median third; TFC modified M-like, weak in female; mid ocellar area distinct; mid ocellus lidded; malar space 1 MOD; subantennal space 2.5 MOD; eye-genal carina space 0.3 MOD; T-II with a well-defined ridge; T-III pit row rather weak, partly hidden beneath prepit bulge; apex of T-III with four short, simple, sharp teeth, an additional outer tooth actually on each lateral edge; S-II spots large, oboval, separated

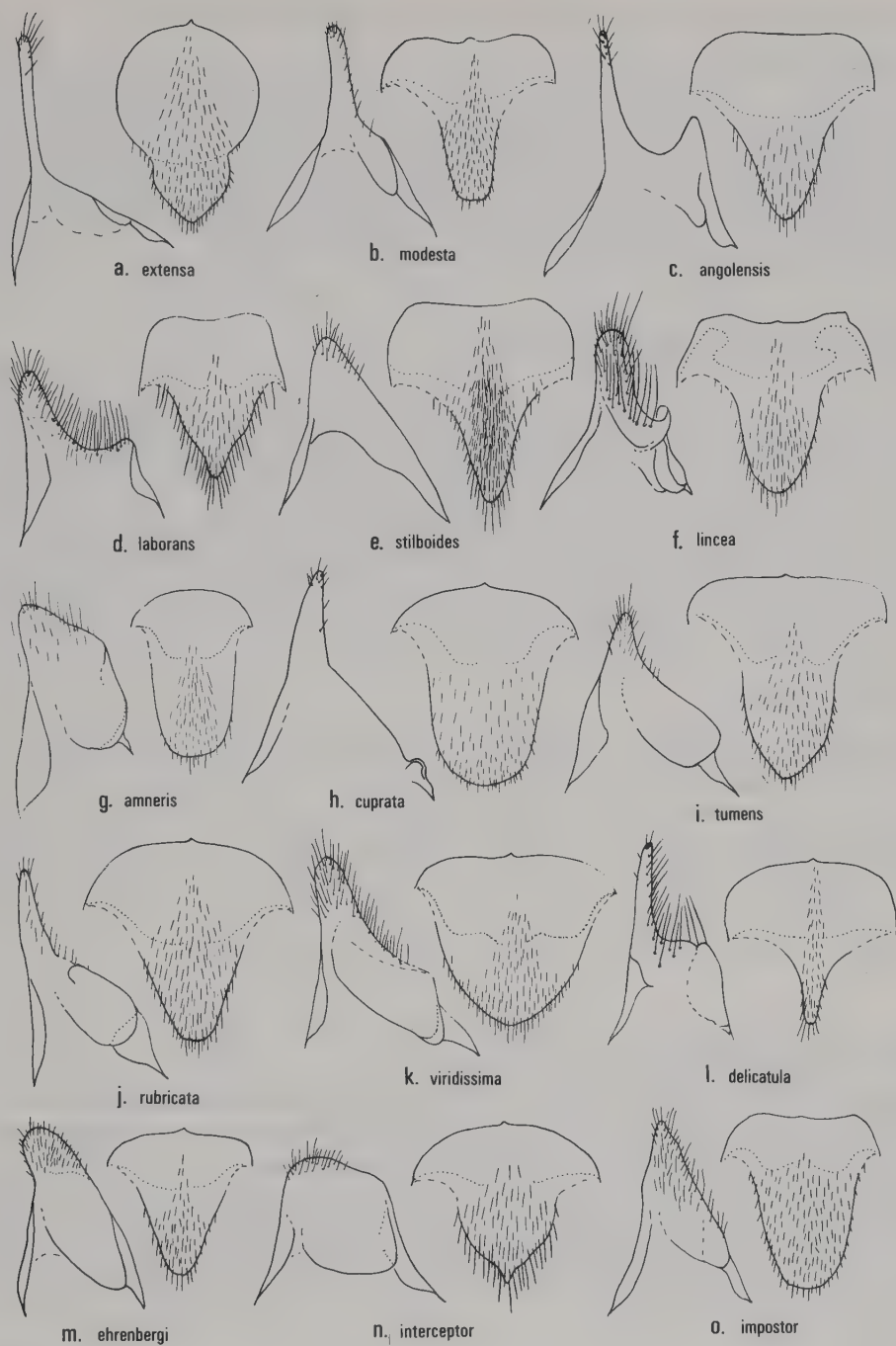


Fig. 113. *Chrysis*, male terminalia. Gonocoxal apex (left), S-VIII (right).

by 2–3 MOD; male S-VIII triangular, setae short; genitalia (Fig. 112e).

**Hosts.** Unknown.

**Discussion.** This is one of the groups in which male F-I–II are both shorter than F-III. Other special features are the silvery male face, partly polished female face, lidded mid ocellus, and six-toothed T-III. This last character might indicate a relationship with the *smaragdula* group, but the male flagellum and terminalia seem quite different. This monobasic group is in the Afrotropical Region.

### *Chrysis pulchella* group (Fig. 107o)

**Diagnosis.** F-I l/w 2.5–3.2; face nearly always microridged medially; TFC rather strong, broadly M-like; mid ocellar area often delimited by fine carinules; malar and subantennal spaces 1.5–2.0 MOD; eye–genal carina space 0.3–0.8 MOD; T-II with a weak to moderate ridge; T-III pit row distinct, sometimes shallow; apex of T-III nearly straight or biconvex (Fig. 107o) with an apicolateral angle (sometimes weak as in *atechka*), lateral edge with a tooth or angle at or beyond middle, followed by a usually well-marked concavity; S-II spots large, quadrangular, close or fused; male S-VIII quadrangular, quite broad posteriorly; gonocoxa quite slender and with short bristles on posterior half.

**Hosts.** Unknown.

**Discussion.** This group has about 20 assigned species, all occurring in the Palearctic Region. There is a general resemblance to species of the *bihamata* and *rufitarsis* groups, both of which may have the T-III apex similar. The *pulchella* group differs from them by the more prominent TFC and distinct pit row. In addition the lateral emargination of T-III is not present in the *bihamata* group. The male terminalia of the *pulchella* group species are quite different from those of the other two. In *atechka* the face is polished medially, an unusual situation for the group.

### *Chrysis rubricata* group (Fig. 113j)

**Diagnosis.** F-I l/w (male) 1.5 and 0.8 times shorter than F-II, (female) l/w 4 but less than twice as long as pedicel; face medially microridged; TFC weakly M-like or practically absent; malar space 3–4 MOD; subantennal space 1.5–2.0 MOD; clypeus rather deeply incised apically; T-III pit row well developed, apex of T-III edentate, slightly incised medially in male, almost evenly rounded out in female, lateral edge simple; S-II spots semicircular and fused; male S-VIII subtriangular; apex somewhat truncate; genitalia (Fig. 113j).

**Hosts.** Unknown.

**Discussion.** The edentate T-III, incised clypeal apex, long malar space, short male F-I, and indistinct TFC separate this monotypic group. The only species is found in



Egypt.

***Chrysis rufitarsis* group** (Figs 104*b*, 107*i*, *u*, 108*a*, and 111*j*)

**Diagnosis.** F-I l/w 2.0–2.5; face rather completely punctate; TFC practically absent (Fig. 104*b*), vestiges in some species indicate a broad M; malar space 1.2–2.1 MOD; subantennal space 1.7–2.5 MOD; pronotum longer than scutellum; propodeal angle short, often blunt, a little concave or convex behind; T-III pit row weak, pits mostly obsolete (Fig. 107*i*, *u*); apex of T-III variable (slightly indented medially, straight, incurved, or outcurved), apicolaterally toothed or angled, lateral edge with an usually strong posterior emargination; S-II spots large, quadrangular, usually fused; male S-VIII stout, subtriangular or rather broadly rounded posteriorly, setae short (Fig. 111*j*).

**Hosts.** Some species may be parasites of ground-nesting bees. Whitehead (1977, personal communication) collected female *antigua* cruising a megachilid nesting area.

**Discussion.** This is the group called '*incisa*' by Linsenmaier (1959*a*). Since Linsenmaier (1968) placed *incisa* as a subspecies of *rufitarsis*, it seems more appropriate to use *rufitarsis* as the group name, even more so because *rufitarsis* predates *incisa* by 55 years! The group has about 20 currently assigned species, all from the Palaearctic and Afrotropical Regions. Principal characters are the rather completely punctate face, obsolete TFC, fairly long subantennal space, weak T-III pit row, and a bidentate or biangulate T-III apex following a usually sharp emargination of the T-III lateral edge (Fig. 107*i*, *u*). The apicolateral angles or teeth of T-III may be greatly exaggerated in Afrotropical species. In *antigua*, for example, they are prong-like (Fig. 108*l*). See the discussion of the *pulchella* group for character differences (p.358).

Brauns (1928) gave *Chrysidium* as a new genus for *antiqua* and *Heterochrysis* as a subgenus for *braini*.

***Chrysis sabulosa* group** (Figs 107*b* and 111*f*)

**Diagnosis.** F-I l/w (male) 1.0 and shorter than F-II or F-III, to 2.0 and as long as F-II or F-III, (female) 1.5–2.0; face densely silver setose (no microridging); TFC weakly defined but essentially a raised and polished broad M; mid ocellar area partly defined by polished welts; malar space 1.7–2.0 MOD; subantennal space 1.6 MOD; eye–genal carina space 0–0.3 MOD; pronotum 1.3 times as long as scutellum; T-III pit row weak, pits mostly effaced medially, no prepit bulge; apex of T-III with four slender teeth, lateral edge of T-III with a sharp angle or tooth toward apex (Fig. 107*b*); S-II spots large and nearly confluent; male S-VIII short and stout; gonocoxa moderately slender, densely setose in posterior third (Fig. 111*f*).

**Hosts.** Unknown.

**Discussion.** *Cephalochrysis* Semenov was based on *sabulosa*, and Linsenmaier (1959*a*) considered it as a synonym of *Platycelia* Dahlbom, based on *ebrenbergi*. We do not think

either generic name is worthy of recognition. The three species of the *sabulosa* group are Palaearctic (s USSR). They agree with those in the *ebrenbergi* group in having a quite short eye to genal carina space, a similar T-III (but usually with an added lateral tooth), and a similar gonocoxa. Differences are the welt-like TFC, face densely setose in both sexes, long pronotum, and short, stout S-VIII.

*Cephalochrysis* Semenov (1910) was proposed as a substitute for *Platycelia* which was erroneously considered a homonym. However, *Cephalochrysis* is not a synonym of *Platycelia* because the generotype is *sabulosa* rather than *ebrenbergi*.

***Chrysis smaragdula* group** (Figs 3, 106m, n, and 109a, m)

**Diagnosis.** F-I l/w (male) 1–3, (female) 2.0–3.5, most often 2.5 or more; face almost completely punctate, some coarse striatopunctuation medially but no microridging; TFC distinct, often straight overall, sometimes a modified M or inverted U, often with posterior rami; mid ocellar area often defined; mid ocellus lidded; malar space variable, mostly 1–2 MOD, rarely 2.5–3.0; subantennal space about 1 MOD; pronotum rarely carinate laterally; mesopleuron sometimes dentate; metanotum sometimes excavate or produced; lateral propodeal angle various, often with a posteroventral lobe; T-II rarely with a well-developed median ridge; T-III well developed, often deep; apex of T-III with six teeth or angles (as in Fig. 107l), rarely seven, lateral edge rarely with a small tooth or two such teeth, all teeth single (double-edged in *wasbaueri*); S-II spots basal, transverse, close or fused, rarely small and median; male S-VIII long triangular; gonocoxa broad, tapering, setae concentrated in posterior half (Fig. 109a).

**Hosts.** Eumenid hosts are known for several species (Parker 1962; Krombein 1958a, 1967).

**Discussion.** With some 82 species assigned to the group, and with a world-wide range, it is not surprising that a considerable amount of variation occurs. In general the group is characterized by the moderate to long female F-I, almost completely punctate face (no microridging), lidded mid ocellus, moderate eye to genal carina space, pronotum shorter than scutellum, apex of T-III with six teeth (seven in *festina*), and S-II spots transverse or fused (median in *intricata*, Fig. 106m). Most of the species are moderate to large (7–12mm long), and the great majority are various shades of green, blue, and bluish purple. Exceptions are *variegata* (reddish terga) and *jousseau mei* (all reddish purple). In *lamellata* and *decemdentata* there are lateral teeth on the T-III margin. The pronotum in *lamellata* is sublaterally carinate.

As presently constituted, the group includes Linsenmaier's (1959a) *fasciata*, *sexdentata*, and *decemdentata* groups. We have not seen representatives of his monobasic *erivanensis* group, but it may also belong here. Considering the overall variation, it would be possible to divide the group into many smaller groups or subgroups. In our opinion this is not now practical.

Several generic names have been used for species in this group. They are *Hexachrysis* Lichtenstein for *micans* (= *variegata*), *Chryaspis* Saussure for *grandidieri*, *Heptachrysis*

Mocsáry for *festina*, and *Octochrysis* Mocsáry for *insperata* =- *decemdentata*).

***Chrysis somaliae* group** (Figs 105e, 107l, and 112i)

**Diagnosis.** F-I-II-III l/w (male) 0.5–0.3–1.5; face almost completely punctate (Fig. 105e); TFC well developed, biconvex; malar space 2.5 MOD; subantennal space 1.5 MOD; T-II with a slightly raised, smooth ridge; T-III pit row obsolete; apex of T-III with six single sharp teeth (Fig. 107l), lateral edge of T-III simple; S-II spots round, separated by 2 MOD. Male terminalia: S- VIII long and broadly rounded posteriorly, gonocoxa slender, tapering, setae short, concentrated at posterior points (Fig. 112i).

**Hosts.** Unknown.

**Discussion.** This monotypic group is known only from the male but its peculiarities are such that the female should be easily recognized, and there are many characters of group value. Prominent features are: F-I-II quite short (Fig. 105e), together only about half as long as F-III, face without microridging but TFC strong, malar space rather long, T-III pit row obsolete, T-III apex with six sharp teeth. None of the other six-toothed *Chrysis* (*smaragdula*, *porphyrophana*, *oculata* groups, and a few miscellaneous species) are even close.

This small *Chrysis* (6.5 mm long) is presumably part of the Palaearctic Region fauna (Somalia).

***Chrysis splendens* group** (Figs 104c, 107n, 108b, 112g)

**Diagnosis.** F-I l/w 1.5–3.0; face microridged in medial quarter to two-thirds (Fig. 104c); TFC distinct, broadly M-like to 'spectacle' shaped; mid ocellar area usually well defined; mid ocellus often lidded; malar space 1–2 MOD; subantennal space 1.0–1.5 MOD; eye to genal carina space 0.3–0.4 MOD; mesopleuron with scrobal sulcus large and deep; lower mesopleuron subdentate or dentate; metanotum usually dentate or roughly spiculate; propodeal angle large, sharp, strongly incurved behind; T-II sometimes ridged; T-III with a median prepit depression (Fig. 107n), pit row moderate beneath usually projecting prepit swelling; apex of T-III with four close-set, simple, short, sharp teeth, an expanded area lateral to tooth row, lateral edge of T-III with a large, basal, rounded, or hook-like projection (Fig. 108b); S-II spots large and at least partly fused; male S-VIII rather short and stout, cuspis subtruncate; genitalia (Fig. 112g).

**Hosts.** Unknown.

**Discussion.** These seven species are part of the Afrotropical fauna. They range from 5–10 mm long and most are green–blue–purple. However, *splendens* has considerable bright coppery colour to red on the thorax and head, and *dentipleuralis* is extensively coppery red with T-III purple and green. An important character is the structure of T-III: four closeset distal teeth flanked by a convexity, and a basolateral tooth or large mound (Figs 107n and 108b). These same features occur in the *wahlbergi* group, but they have no median prepit depression on T-III, overall punctation is usually much



finer, and the propodeal projection is straight to convex or lobed behind (rather than strongly incurved). Bischoff (1910) proposed *Pseudohexachrysis* as a genus for *splendens*.

***Chrysis splendidula* group** (Figs 107e, 109p, and 111g)

**Diagnosis.** F-I l/w (male) about 1.5, about as long as F-III, F-II 1.3–1.4 and shorter than F-I or F-III (about as in Fig. 106w), F-I l/w (female) 1.8–2.5; face sometimes medially microridged; TFC usually distinct, biconvex, or more often M-like, sometimes recurved below and almost spectacled; mid ocellar area weakly defined; mid ocellus rather sunken and slightly lidded; malar space 0.6–2.5 MOD, usually 1.0–1.5 MOD; subantennal space 1.1–1.6 MOD; eye to genal carina space 0.3–1.0 MOD; T-II ridge usually weak; T-III with pit row distinct, sometimes shallow; apex of T-III with four single, often sharp, sometimes short, teeth, lateral edge of T-III simple; S-II spots at least 2 MOD apart; male S-VIII usually rather strongly narrowed in posterior half; gonocoxa slender, tapering, setose along posterior half of inner margin (Figs 109p, 111g).

**Hosts.** According to Linsenmaier (1959a), *rutilans* (as *extranea*) is a parasite of *Eumenes* species in the Far East.

**Discussion** Characteristics of the group are the slightly shortened male F-II (not in *rutilans*), distinct TFC which is often recurved below, distinct pit row, well-separated S-II spots, and slender gonocoxa. This Palaearctic–Afrotropical group of medium to small species is not easily recognized in the female, especially if the markings are all green–blue–purple. Most of the European members have T-I and/or T-II some shade of red, contrasting with the green or blue T-III. These species have been placed in a separate subgroup, *splendidula* s.s.

***Chrysis splendidula* group, typical subgroup** (Figs 107e, 111g)

**Diagnosis.** F-I l/w (female) 2.2–3.0; T-I (usually) and T-II with various shades of red; T-III contrastingly blue, purple, or green.

**Discussion.** The, approximately, 10 species assigned to the subgroup are Palaearctic.

***Chrysis splendidula* group, *senegalensis* subgroup** (Fig. 109p)

**Diagnosis.** All species without a contrastingly coloured T-III. Two species (*kenyana*, *eximia*) have T-III angled out laterally. Three species (*braunsiana*, *eximia*, *impudens*), at least in the female, have T-II–III partly, or all, reddish to gold.

**Discussion.** The 13 species placed in this subgroup are both Palaearctic and Afrotropical. They are medium small (5–8mm long), slender, and mostly green–blue–purple. Discrete purplish laterobasal spots are often present on T-II–III. Three Afrotropical species have exceptional markings. These are *braunsiana* with terga mostly golden, *impudens* with terga mainly purple and gold, and *eximia*. This last species, with unusually sharp T-III teeth, has male coloration mostly blue–green–



purple. The female, however, may be brilliantly purple, green, gold, and reddish coppery. All species have the face below TFC unusually narrow and nearly parallel-sided. In *eximia* the digitus has its denticles concentrated medially (Fig. 109p).

*Chrysis subsinuata* group (Fig. 110j)

**Diagnosis.** F-I l/w (male) 2, (female) 2.5; face somewhat polished or weakly microridged medially; TFC absent or rarely with M-like traces; malar space 2.5–3.0 MOD; subantennal space about 2 MOD; T-I with a pair of submedian humps at front of dorsal area; T-III unusually long and narrow, pit row distinct and close to apex which is not toothed but with weak side corners, lateral edge of T-III simple; S-II spots large, narrowly divided by a reddish strip. Male terminalia (*subsinuata*) (Fig. 110j), gonocoxa inner side with small setae.

**Hosts.** Unknown.

**Discussion.** The three known species are Palaearctic (Spain to Jerusalem to Egypt). In some respects they resemble those of the *varidens*–*gracillima* subgroup; T-III, especially, being similar. However, the double hump at the base of T-III in the *subsinuata* group (especially in females) is unique, and the male flagellum is simple.

*Chrysis succincta* group (Figs 106c, f, l, 111k, l, and 114b)

**Diagnosis.** F-I l/w (male) 1.5–2.5, (female) 2.0–3.5; face variable (see subgroups); TFC (see subgroups); malar space 1.0–1.6 MOD; subantennal space 1.0 MOD; eye to genal carina space 0.3–1.0 MOD; T-III pit row distinct; apex of T-III variable, 0–4-toothed, projecting medially (Fig. 106f), lateral edge simple; S-II spots large, part of a transverse band (Fig. 106l). Male terminalia: S-VIII subtriangular, sometimes a little narrowed in posterior half, gonocoxa narrowed toward posterior apex which is usually emarginate.

**Discussion.** This large group (about 90 species) of small chrysidids is treated in two subgroups as follows: *succincta* and *leachii*. Linsenmaier (1959a) considered them as separate groups on the basis of the presence or absence of microridging in the scapal basin. Experience shows that this is not a good group character. Furthermore, the same rather distinctive gonocoxa (Fig. 111k, l) occurs in both.

*Chrysis succincta* typical subgroup (Figs 106c, f and 111l)

**Diagnosis.** Scapal basin polished medially (males may have only a median polished streak); TFC absent (most American species) or vaguely M-like (most Old World species); brow prominent in all species, sometimes ridge-like (Fig. 106c); T-III apex edentate, four-dentate, or with a bidentate median projection (Fig. 106f).

**Hosts.** According to Linsenmaier (1959a) hosts are various bees and sphecids, but not those in twig nests.

**Discussion.** About 70 species have been placed in this subgroup which is rather widespread in the Holarctic Region. The absence of microridging in the scapal basin

is the main distinguishing feature. This is the *dorsalis* group of Bohart and Kimsey (1982), which included 10 species.

Two generic names have been used for species in this subgroup: *Tetrachrysis* Lichtenstein for *aeruginosa* (= *succincta*), and *Actinochrysis* Haupt for *bicolor*. *Tetrachrysis* was subsequently used by Bischoff (1910) as a genus comprising nearly all four-toothed *Chrysis*.

***Chrysis succincta leachii* subgroup (Fig. 111*k*)**

**Diagnosis.** Scapal basin broadly microridged; eye to genal carina space 0.3 MOD; T-III apex edentate, essentially triangular.

**Hosts.** According to Linsenmaier (1959*a*) hosts are species of *Miscophus* (Sphecidae: Miscophini).

**Discussion.** This subgroup ranges over the Palaearctic Region but mostly in the western part. Essential characters are the microridged scapal basin and the edentate T-III. With respect to the latter character, some species of the *succincta* subgroup, such as *albanica* and *chrysoscutella*, have T-III quite similar.

***Chrysis taczanovskii* group (Figs 105*c* and 111*o*)**

**Diagnosis.** F-I l/w (male) 1.3–1.5 but considerably shorter than F-II or F-III, l/w (female) about 3 and much longer than F-II or F-III; face microridged medially (Fig. 105*c*); TFC strong, a broadly inverted U; mid ocellar area rather well defined; mid ocellus sometimes narrowly lidded; malar space 1.5–1.6 MOD but longer than subantennal space which is 1.0–1.5 MOD; mesopleuron usually simple; T-II with a low ridge, appearing also on T-III; T-III pit row usually well developed; apex of T-III with four simple, moderately long, sharp teeth, lateral edge of T-III simple; S-II spots large and usually close; male S-VIII subtriangular; genitalia (Fig. 111*o*).

**Hosts.** Unknown.

**Discussion.** Principal features are the relatively short male F-I, relatively long female F-I, strong TFC of an inverted U shape, malar space longer than subantennal space, short pronotum, rather long T-III teeth, and somewhat unusual gonocoxa. In some ways this group is intermediate between the *graelsii* and *cerastes* groups. The male antenna and gonocoxa compare favourably with those of the *graelsii* group. The female antenna and general facial structure (broad genae) (Fig. 105*c*) make group distinctions from such *cerastes* group species as *ambigua* and *cerastes* difficult in females. From the *graelsii* group, the longer malar space and, in the female, the longer F-I and broad lower face are sufficient to distinguish *taczanovskii* and its allies. See the discussion under the *cerastes* group (p.340) for differences there. With *misella*, six species have been assigned to this group which is essentially Palaearctic. *Chrysis chlorospila* occurs from Sicily and Egypt to Israel and Ethiopia. It has several unusual features, such as a sharp lower mesopleural tooth, weakly developed T-III pit row, and well-separated S-II spots.

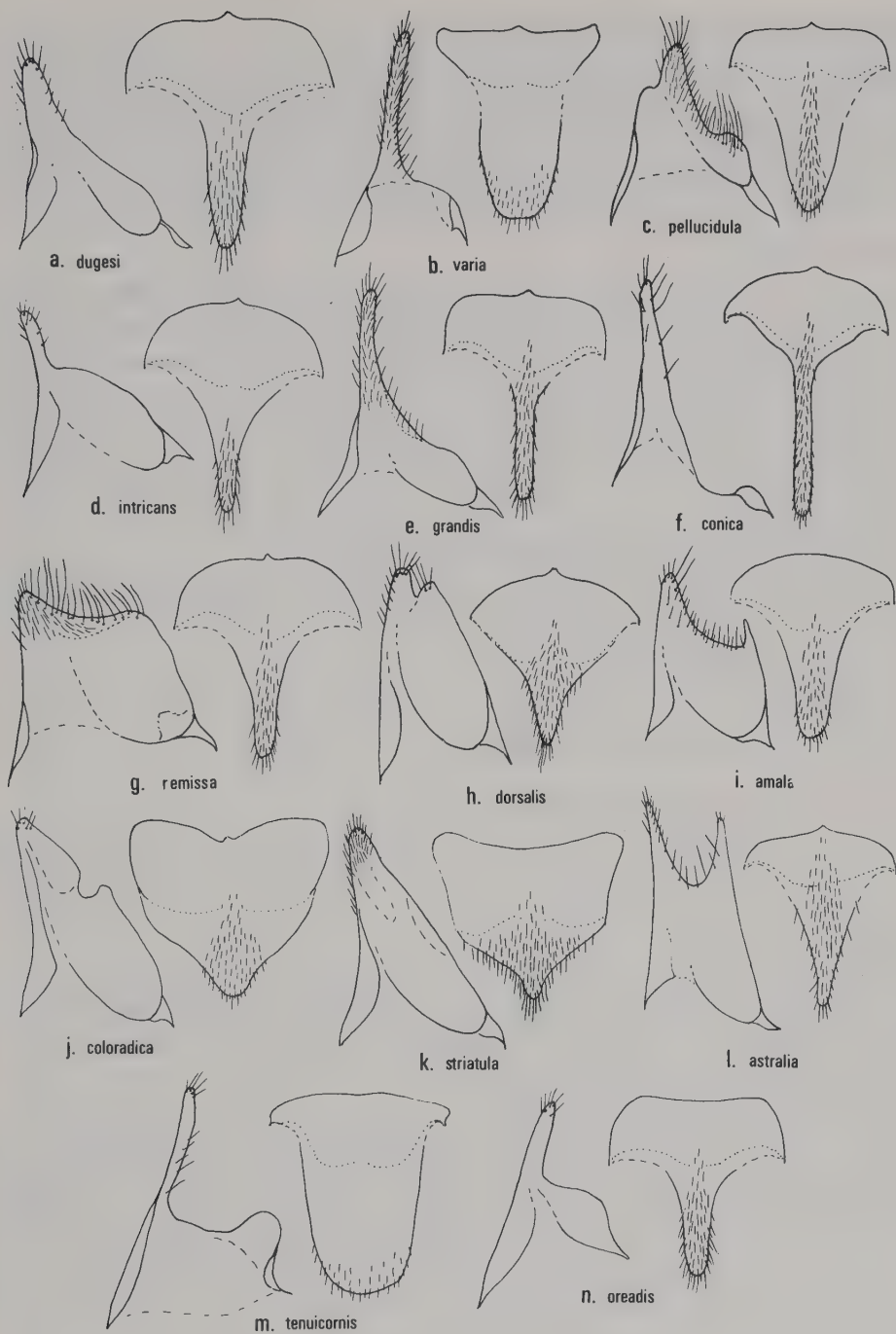


Fig. 114. *Chrysis*, male terminalia. Gonocoxal apex (left), S-VIII (right).

*Chrysis varidens* group (Fig. 110*k*, *l*)

**Diagnosis.** F-I l/w 2–4, male F-II–III or F-IV somewhat asymmetrical; face microridged in median third to half; malar space 2–3 MOD; subantennal space 1.2–1.5 MOD; T-III pit row well developed; S-II spots large, quadrate, close or fused. Male terminalia: S-VIII strongly narrowed in posterior third, gonocox narrow posteriorly but with a large, angular inner sub-basal projection (Fig. 110*k*, *l*).

**Hosts** Unknown.

**Discussion.** We have divided this group into two subgroups (*varidens* s.s., *gracillima*), primarily on whether or not T-III is distinctly toothed. For the group as a whole, important features are the rather long F-I, asymmetrical flagellomeres in the male, microridged face, weak TFC when present, moderately long malar space, large S-II spots or band, and rather distinctive male terminalia. In the related *aureomaculata* group, TFC is strong and there is a low, raised triangle on the metanotum. The *varidens* group is Palaearctic.

*Chrysis varidens* group, typical subgroup (Fig. 110*k*)

**Diagnosis.** TFC mostly weak and M-like; T-III strongly saddled in female; apex of T-III with four strong, simple, usually sharp teeth set close together, lateral edge of T-III somewhat sinuate or convex overall.

**Hosts.** Unknown.

**Discussion** About seven species are known.

*Chrysis varidens* group, *gracillima* subgroup (Fig. 110*l*)

**Diagnosis.** TFC obsolete or absent; T-III not much saddled in female; apex of T-III with middle pair of 'teeth' mound-like or absent, outer pair obtusely rounded or weakly angled, lateral edge of T-III simple.

**Hosts** Unknown.

**Discussion** About eight species have been described. Two generic names have been used with *gracillima* as the type: *Chrysogona* Förster and *Ischnochrysis* Haupt.

*Chrysis viridissima* group (Fig. 113*k*)

**Diagnosis.** F-I l/w (male) 1.8–2.0, (female) 2.5–3.0; face almost completely punctate in both sexes; TFC M-like, weak to well developed; mid ocellar area fairly well defined; mid ocellus lidded; malar space 1.5–2.5 MOD; subantennal space 1.3–1.5 MOD; eye–genal carina space 0.3–0.5 MOD; T-III pit row quite weak, hardly impressed, pits small; apex of T-III with four 'teeth', outer ones sharper, inner ones obtusely rounded, lateral edge simple; S-II spots close and large or moderate and separated; male S-VIII stout, nearly triangular; genitalia (Fig. 113*k*).

**Hosts** Unknown.



**Discussion.** The seven species assigned to this group, including *araratica* and *bytinskii* which we have not seen, are all Palaearctic and particularly circum Mediterranean. In these species the abdomen is green to purple or at least not contrasting in ground colour with the thorax. Main features are the moderately long F-I and malar space, lidded mid ocellus, quite weak T-III pit row with small pits, and short T-III teeth, with the middle pair obtuse and a little rounded. Differences from the *viridula* group are given below.

***Chrysis viridula* group** (Figs 107a and 111b)

**Diagnosis.** F-I l/w (male) 1.2–1.7, (female) 1.5–2.0, F-II l/w (male) about 1 and usually a little shorter than F-III, F-III–XIII (male) often light to dark red and sometimes black-spotted; face microridged in median fourth; TFC usually weak and sometimes partial, basically M-like or an inverted U; malar space 0.5–0.9 MOD; subantennal space 1.0–1.3 MOD; T-II at most with a fine ridge; T-III pit row developed, pits mostly large; apex of T-III distinctive (Fig. 107a), with four teeth or lobes, lateral pair usually obtusely pointed, middle pair mound-like, lateral edge simple; S-II spots large and separated by 1.0–1.5 MOD; male S-VIII strongly narrowed in posterior half; gonocoxa tapering almost to a point, many short setae along inner posterior half (Fig. 111b).

**Hosts.** *Chrysis viridula* has been associated with the eumenid, *Odynerus alpinus* Schulthess; *pyrrhina* and *pulcherrima* are presumably parasitoids of the sphecids, *Cerceris rubida* Jurine (Linsenmaier 1959a). According to Mocsáry (1889), *Ancistrocerus*, *Odynerus* and *Osmia* are hosts for *viridula*.

**Discussion.** We have seen all of the species in this group except *afghanica*, *magnitudina*, *pulcherrima*, and *pyrrhina*. They are all Palaearctic and characteristically have T-III green or blue in contrast to the more reddish T-II. Other cases in which this special bicoloured condition of the terga occurs are the *splendidula* s.s. subgroup and a few species of the *comparata scutellaris* subgroup (*ramburi*, *imperiatrix*, *semicincta* female). In these similarly marked taxa the *splendidula* s.s. subgroup has the malar space considerably more than 1 MOD; the *scutellaris* subgroup species have T-III angled out laterally (not in *semicincta*), male F-II at least as long as F-III, and female F-I more than twice as long as pedicel (not so in *viridula* group). Contrary to the above discussion on markings is a male which we have seen, collected in the USSR, which is all green to blue. It belongs to the *viridula* group by its typical T-III form, quite short malar space, slightly shortened F-II versus F-III, and reddish flagellum beyond F-II. Differences with the *viridissima* group, in addition to markings and male F-II, are the shorter malar space and stronger T-III pit row in the *viridula* group.

Haupt (1956) placed *viridula* his new subgenus *Cymatochrysis*.

***Chrysis wahlbergi* group** (Figs 104f, 107m, 108c, d, and 113d)

**Diagnosis.** F-I l/w (male) 2–3, (female) 2.2–3.5, face usually microridged medially;

TFC indistinct, irregular on rough brow, arc-like and often prominent (Fig. 104f), or rarely spectacle formed; mid ocellar area sometimes defined; mid ocellus sometimes lidded; malar space 1.0–1.7 MOD; subantennal space 0.7–1.4 MOD; pronotum sometimes carinate laterally; mesopleuron with a large areole below scrobal sulcus, rarely dentate; metanotum with a small or fairly large posteromedial projection; propodeal angle straight to lobulate or angulate behind; T-III prepit area not depressed and with at most a low bulge, pit row moderate; apex of T-III with four close-set simple, pointed, or sharp teeth, an expanded area usually present lateral to the tooth row (Fig. 107m); lateral edge of T-III with basal hook, tooth (Fig. 108c), or convexity (sometimes low); S-II spots rather small to large, somewhat separated, sometimes faint. Male terminalia: S-VIII usually rather pointed posteriorly, cuspis often subtruncate, gonocoxa with long setae on inner distal margin (Fig. 113d).

**Hosts.** Unknown.

**Discussion.** The, approximately, 15 species assigned to this group are all Afrotropical. They are small (5.5 mm long) to moderately large (10 mm long), green–blue–purple *Chrysis*. There seems to be a rather close relationship to the *splendens* group based on dentition of T-III (four distal teeth and a basolateral projection). The main differences in the *wahlbergi* group are: absence of a prepit depression on T-III, propodeal angle not noticeably incurved behind, and S-II spots not large and fused. TFC may be indistinct (*stangei*), or spectacle-like (some *laborans*). The basolateral tooth or bulge on T-III may be quite small, as in *tecta*.

***Chrysis westermanni* group** (Figs 105b, 107t, 109t, 112b)

**Diagnosis.** F-I l/w (male) 1.7–1.8, a little longer than F-II (Fig. 105b), (female) 2.3–2.5, longer than F-II; face punctate overall, not microridged; TFC strong, irregularly lenticular, five backward branches, submedian pair defining mid ocellar area; mid ocellus lidded; malar space 0.6–1.0 MOD; subantennal space about 1 MOD; mesopleuron somewhat rough but not clearly dentate; metanotum bulging, rough and sometimes subdentate posteromedially; propodeal angle stout, often blunt, a little convex behind; T-III pit row well developed, prepit swelling broad and low; apex of T-III with four short, simple, pointed teeth, flanked by a convexity (Fig. 107t), lateral edge of T-III simple; S-II spots rather large, median, fused. Male terminalia: S-VIII stout, broadly rounded, or subtruncate posteriorly, cuspis broad and subtruncate, its apex exceeded by digitus (Fig. 109t), gonocoxa deeply divided posteriorly, outer slender branch setose at apex (Fig. 112b).

**Host.** A male of an undescribed species bears the label 'ex *Isodontia*' (Sphecidae: Sphecinae).

**Discussion.** The species of this group are part of the Afrotropical Region fauna. The individuals are medium large *Chrysis* (8–9 mm long), and blue–green–purple. The male genitalia are quite distinctive (Figs 109t and 112b) but externally the species resemble those of the *zuluana* group, and *tecta* of the *wahlbergi* group. The somewhat shorter

F-I of the *zuluana* group is discussed under that group. In *tecta* S-II spots are separated, TFC has only one medial angle and a weak one near the eye, and T-III teeth are much closer together. Also, *tecta* has a weak basolateral convexity on T-III.

### *Chrysis zuluana* group (Fig. 112c)

**Diagnosis.** F-I l/w (male) 1.0–1.5, shorter than F-II or F-III, (female) 2.0–2.5, slightly longer than F-II; face unusually broad, a little polished near mid-line but not microridged; TFC broadly arc-like overall but with 3–5 small obtuse angles; mid ocellar area well defined (weak in *zulana*); mid ocellus lidded; malar space about 1.5 MOD; subantennal space 1.3–2.0 MOD; mesopleuron with verticaulus subdentate, a large areole below scrobe; propodeal angle pointed, straight, or slightly convex behind; T-III pit row moderate below slightly overhanging prepit bulge; apex of T-III with four short, sharp, single teeth flanked by a convexity, lateral edge of T-III slightly sinuate; S-II spots separated by less than 1 MOD. Male terminalia: S-VIII long, stout, posteriorly truncate, cuspis broad and subtruncate, digitus extending beyond cuspis, gonocoxa stout, tapering, distinctively shaped (Fig. 112c).

**Hosts.** Unknown.

**Discussion.** This group of three moderate sized (8–9mm long), robust species are all found in the Afrotropical Region. The green–blue–purple species are quite similar to those of the *westermanni* group, and to at least one species of the *wahlbergi* group (*tecta*). The short male F-I and relatively short female F-I (I–II subequal) separate the *zuluana* group. In *trautmanni* the scutum and T-I–II have brilliant gold and red markings. T-II is mostly purple followed by green and laterally with red spots.

### New World species groups

Of the 19 New World species groups, 14 may be considered endemic, 10 of these are confined to the Nearctic Region, 2 are Neotropical, and 2 occur in both Regions. The 5 species groups also represented in the Old World are *comparata*, *angolensis*, *ignita*, *smaragdula*, and *succincta*. For discussion of these groups refer to the sections under the Old World species.

In most of the groups the mesopleuron and metanotum are simple; that is, without teeth or other projections. Also, there is no distinct longitudinal carina on T-II.

For additional information see Bohart and Kimsey (1982). In some cases these authors had the species groups with slightly different composition.

### KEY TO NEW WORLD SPECIES GROUPS OF CHRYSIS

- 
1. F-II at least slightly shorter than F-III (Fig. 106s, t, w); T-III 4-toothed (applies to males only)

- |   |   |
|---|---|
| F-II fully as long as F-III; T-III 4-to 6-toothed (males and females) | 6 |
|---|---|
- 
- |   |   |
|---|---|
| 2. T-III teeth single edged (viewed ventrally with special emphasis on median emargination); mesopleuron (below scrobal sulcus) sometimes multidentate. | 3 |
| T-III teeth double-edged (Fig. 108j, l); mesopleuron not dentate  | 4 |
- 
- |  |                              |
|--|------------------------------|
| 3. Mesopleuron multidentate below scrobal sulcus; F-I as long as F-III |                              |
|  | <i>intricans</i> group p.374 |
| Mesopleuron not dentate; F-I usually shorter than F- III               | <i>pattoni</i> group p.376   |
- 
- |   |                            |
|---|----------------------------|
| 4. Malar space 1 MOD or less; F-I shorter than F- III | <i>venusta</i> group p.378 |
| Malar space 1.5 MOD or more; F-I versus F-III various | 5                          |
- 
- |  |                               |
|--|-------------------------------|
| 5. F-I shorter than F-III (Fig. 106s); malar space about 1.5 MOD |                               |
|  | <i>antennalis</i> group p.372 |
| F-I as long as F-III (Fig. 106w); malar space 2.0 MOD or more    |                               |
|  | <i>dugesi</i> group p.373     |
- 
- |   |                            |
|---|----------------------------|
| 6. Metanotum with a short lamina projecting posteriorly; TFC W-like (Fig. 104a)     | <i>nisseri</i> group p.375 |
| Metanotum without a short lamina projecting posteriorly; TFC various but not W-like | 7                          |
- 
- |   |    |
|---|----|
| 7. Mesopleuron strongly dentate below scrobal sulcus; T-III with 4 apical teeth | 8  |
| Mesopleuron not dentate; or if so, T-III with 6 apical teeth                    | 10 |
- 
- |   |                            |
|---|----------------------------|
| 8. T-III with prepit bulge projecting strongly over pit row (Fig. 108k) |                            |
|   | <i>grandis</i> group p.374 |
| T-III without a strongly projecting bulge                               | 9                          |
- 
- |   |                               |
|---|-------------------------------|
| 9. Mid ocellar area bounded by strong carinules (as in Fig.105h); wings dark brown                          | <i>angolensis</i> group p.334 |
| Mid ocellar area bounded by weak and incomplete carinules or not defined; wings partly clear or light brown | <i>intricans</i> group p.374  |
- 
- |   |    |
|---|----|
| 10. T-III with 6 distal teeth (as in Fig.107l) and/or F-I 8-10 x as long as broad (Fig. 106b); eye separated from genal carina by 0.5-1.0 MOD | 11 |
| T-III with at most 4 teeth, or if 6 (rare), eye separated from genal carina by  |    |



- 0–0.2 MOD; F-I less than 8x as long as broad 12
- 
11. F-I 8–10 x as long as broad (Fig. 106*b*); T-III normally 6-toothed (Fig. 106*d*)  
(rarely 4); outermost pair of teeth lateral *tenuicornis* group p.377  
F-I less than 8 x as long as broad; T-III teeth all essentially apical  
*smaragdula* group p.360
- 
12. Eye separated from genal carina by about 0.3 MOD or less (Fig. 106*k*) 13  
Eye separated from genal carina by 0.5 MOD or more 15
- 
13. T-III pit row weakly indented, if at all, pits often isolated; malar space less  
than 1 MOD; T-III usually 4-toothed, but one rare species with 6 teeth or  
angles *propria* group p.377  
T-III pit row well developed, pits often confluent; malar space variable; all  
species 4-toothed 14
- 
14. Malar space less than 1 MOD, subantennal space long (2.8–3.0 MOD); T-III  
apex expanded laterally (Fig. 108*l*) *crotema* group p.373  
Malar space 1.5 MOD; subantennal space short (0.6 MOD); T-III apex not  
expanded laterally (Fig. 106*e*) *pellucidula* group p.376
- 
15. T-III apex double-edged (viewed posteroventrally) (as in Fig.108*j*) 16  
T-III apex single-edged 19
- 
16. T-III usually with a sharp, median, longitudinal carina from near base; but if  
not, T-III without a saddle-like depression in female; malar space about 2  
MOD. *dugesi* group p.373  
T-III without a sharp longitudinal carina from near base; malar space various;  
but if 2 MOD, female T-III saddled 17
- 
17. Malar space 2 MOD or more *antennalis* group p.372  
Malar space 1 MOD or less 18
- 
18. T-III pit row straight across as viewed directly from above (Fig. 106*i*); face a  
little striate but without conspicuous transverse microridging medially; post-  
ocellar area usually bituberculate *remissa* group p.377  
T-III pit row curving forward medially as viewed directly from above; face with  
medial microridging; post ocellar area without tubercles *venusta* group p.378
- 
19. Face with a narrow strip of punctures along eye; broad median area polished  
and partly sculptured; TFC distinct *varia* group p.378

Face with punctured zone extending irregularly inward, often to mid-line; TFC present or not 20

20. S-II spots elongate oval, separated (Fig. 106*p*); scrobal sulcus weakly indicated across mesopleuron; body small, slender, closely punctate; TFC biconvex, somewhat recurved below; T-III teeth all sharp *oreadis* group p.375

S-II spots not elongate oval, sometimes confluent medially; scrobal sulcus well developed; other characters various 21

21. TFC practically absent on strong brow (Fig. 106*c*); T-III median pair of teeth or lobes extending considerably farther posteriorly than lateral pair (Fig. 106*f*) (rarely T-III apex almost edentate but rounded out); female face at least partly polished medially; T-II without a distinctly raised carina; small species, rarely exceeding 6mm in length *succincta* group p.363

TFC present; or if not, T-III median pair of teeth not extended unusually; female face either completely punctate or medially microridged; T-II often with a well-defined median carina; small to large species, but usually more than 6mm long 22

22. Pronotum (as viewed from above and measured from an imaginary line across 'shoulders') longer than scutellum; T-II usually without a sharp longitudinal carina *comparata* group p.342

Pronotum (measured as above) shorter than scutellum; T-II often with a sharp longitudinal carina *ignita* group p.348

### *Chrysis antennalis* group (Figs 106*s* and 109*c*)

**Diagnosis.** F-I-II (male) short, 1.0–1.5 times length of F-III (Fig. 106*s*), (female) 2.3–2.5 times breadth; face microridged medially; TFC strong and biconvex; mid ocellar area at most weakly defined; mid ocellus lidded; malar space 1.8–2.1 MOD (mid ocellus small); subantennal space 1 MOD; genal carina separated from eye by 1.0–1.3 MOD; propodeal angle sharp, incurved behind, sometimes notched basally; T-III weakly saddled in female, lateral edge simple, pit row deep, curved forward medially, pits large, apically with four sharp and double-edged teeth; S-II spots long oval, well separated. Male terminalia: S-VIII narrowed, with mostly short bristles on distal half, gonocoxa (Fig. 109*c*).

**Hosts.** Various Eumenidae are recorded as hosts of this group, including *Stenodynerus*, *Odynerus*, *Parancistrocerus*, *Microdynerus*, and *Ancistrocerus* (Krombein 1958*a*, 1967; Bohart and Kimsey 1982).

**Discussion.** The *antennalis* group is characterized by the double-edged T-III in combination with the very short male F-I-II (Fig. 106*s*), moderate malar space, and saddled T-III in the female. A relationship with the Old World *cerastes* group is possible

on the basis of the short male F-I-II, but this may be merely convergence. In any case the double-edged T-III apex of the *antennalis* group is diagnostic.

All three of the described species are Nearctic, although *purpureiventris* has a Caribbean range.

### *Chrysis crotema* group (Figs 108*l* and 109*b*)

**Diagnosis.** F-I l/w 2.0, a little longer than subantennal space; face medially with a small microridged spot; TFC irregular but straight overall; mid ocellar area depressed and weakly defined; mid ocellus lidded; malar space about 0.5 MOD; clypeus narrowed anteriorly; subantennal space 2.8–3.0 MOD; eye and genal carina practically touching for considerable distance; metanotum rough and subdentiform; propodeal angle fairly large, sharp, incurved behind; T-III apex with four broadly double-edged teeth and a lateral expansion (Fig. 108*l*), pit row large; S-II spots round and well separated. Male terminalia: S-VIII stout and broadly rounded distally, cuspis stout, gonocoxa narrowed toward bristly apex (Fig. 109*b*).

**Discussion.** The short malar space contrasted with the long subantennal space, together with the double-edged teeth of T-III are diagnostic for this monotypic group. Bohart and Kimsey (1982) placed *crotema* in the *propria* group, but the distally narrowed gonocoxa and broadly double-edged T-III argue against this. Also, members of the *propria* group have the metanotum evenly rounded, and TFC is more M-like. This species is found in the Sonoran Zone of western USA and Mexico.

### *Chrysis dugesi* group (Figs 106*w*, and 114*a*)

**Diagnosis.** F-I l/w (male) 1.6–1.7, (female) 2.5, F-II (male) 1.2 times breadth, as long as malar space but a little shorter than F-III (Fig. 106*w*); face microridged medially; TFC moderate to strong, forming a broad inverted U; mid ocellar area not defined; mid ocellus lidded; malar and subantennal spaces 2.0–2.5 MOD; eye to genal carina about 1 MOD; propodeal angle sharp and incurved behind; T-III (female) hardly saddled in lateral profile, apically with four sharp, double-edged teeth, lateral edge simple, pit row well developed; S-II spots obovate, well separated. Male terminalia: S-VIII and gonocoxa narrowed in distal half (Fig. 114*a*).

**Discussion.** The reduced male F-II would seem to indicate a relationship to the Old World *splendidula* group as well as the New World *intricans* group. They probably represent a Nearctic offshoot of the *splendidula* group. We have separated the *dugesi* group primarily on the basis of the double-edged T-III teeth. There are several points of difference between the two included species. However, the similarities have persuaded us to put them together. In *dugesi* T-II has a median ridge, but in *krombeini* there is none. Bohart and Kimsey (1982) placed *krombeini* in the *antennalis* group where it is certainly a misfit.

*Chrysis grandis* group (Figs 108*k* and 114*e*)

**Diagnosis.** F-I l/w (male) 2.0, (female) 2.5; face almost completely punctate; TFC projecting strongly, lens-like or biconvex; mid ocellar area not defined; malar space about 2 MOD; subantennal space 1.3–1.6 MOD; eye separated from genal carina by about 0.5 MOD; mesopleuron with two knob-like 'teeth', upper one usually the larger; propodeal angle stout, straight, or incurved posteriorly; T-II with a strong ridge, often extended on T-III; T-III lateral edge simple, apex with four simple sharp teeth, pit row distinct beneath strongly overhanging prepit fold (Fig. 108*k*); S-II spots oval and well separated. Male terminalia: S-VIII and gonocoxa with distal half quite slender (Fig. 114*e*).

**Hosts.** Linsenmaier (1959*a*) listed the bee genus *Caupolicana* (Colletidae) as a host of *grandis* (as *carinata* Guérin). This record seems suspect.

**Discussion.** The species of this group are closely related, distinguished by minor differences on the mesopleuron and T-III. The group is unique among Neotropical forms in having a strongly depressed prepit area of T-III associated with the prepit fold. Some relationship with the Old World *intricans* and *splendidula* groups may be indicated by the slender gonocoxal and S-VIII apices. Linsenmaier (1959*a*) put the *grandis* group in the *carinata* group in the subgenus *Pentachrysis*, a decision with which we do not agree.

These three species (*grandis*, *subfoveolata*, *rohweri*) are primarily Chilean, but have found their way over the high mountain passes of the Andes into Peru and Argentina.

*Chrysis intricans* group (Figs 106*g* and 114*d, f*)

**Diagnosis.** F-I l/w (male) 1.3–1.5, F-II a little shorter, F-III about as long as F-I, l/w (female) 1.5–2.0; face coarsely to finely cross-ridged medially; TFC distinct, lenticular, or a broad inverted U; mid ocellar area at most weakly defined; mid ocellus usually narrowly lidded; malar space 1.2–1.9 MOD; subantennal space 1.0–1.5 MOD; eye separated from genal carina by 0.4–0.7 MOD; mesopleuron with 2–4 denticles; propodeal angle stout, pointed, straight, or incurved behind; T-II usually with a strong ridge often extended on T-III; T-III apex with four simple, sharp teeth, pit row well developed, pits usually longer than broad, median division of pit row usually sharp; S-II spots rounded, or oval and well separated. Male terminalia: S-VIII with posterior half quite slender, gonocoxa narrowed in posterior half, bristles mostly near apex, cuspis quite slender (Fig. 114*d, f*).

**Hosts.** *Eumenes fraternus* Say, which builds mud-pot nests, has been recorded as the host of *conica* (Krombein 1979).

**Discussion.** The reduced male F-II may relate these species to the Palaearctic and Afrotropical *splendidula* group. Male terminalia are similar but the gonocoxa of the *intricans* group has the bristles concentrated distally. Also, many *splendidula* group species have T-III contrasting in colour with T-II. Furthermore, the all-blue to-green species have TFC M-shaped, unlike those in the *intricans* group. The inclusion of



*fossulata* in the group is based on structural similarities. This species has been recorded from shipping ports of China (Shanghai) and Africa ('Port Natal' – Durban). We suggest that it has been transported in *Eumenes* nests on machinery or the like. Otherwise, the 10 species of this group are largely Neotropical, except *C. conica*, which reaches southern USA, and *superba*, which is found in Cuba.

***Chrysis nisseri* group** (Figs 106*a*, 109*b*, and 110*o*)

**Diagnosis.** F-I l/w 1.7–2.0; face almost completely punctate, a little transversely striatiform; TFC characteristically W-shaped (Fig. 106*a*), often with posterior rami defining mid ocellar area; mid ocellus sometimes weakly lidded; malar space about 1.5 MOD; subantennal space 1 MOD; eye separated from genal carina by 1 MOD, genal carina somewhat flange-like; mesopleuron sub-bidentate, with scrobal sulcus a series of broad, flat areolae; metanotum with a short posteromedial 'spatula'; propodeal angle large, sharp, tilted outward, and slightly convex behind; T-II sometimes weakly ridged; T-III apex with four sharp, simple teeth, lateral edge simple, pit row nearly obsolete to moderately developed; S-II spots basal, transverse, narrowly separated or fused. Male terminalia: S-VIII trianguloid, rather broadly rounded posteriorly, with long posterior bristles; cuspis similarly bristled; gonocoxa narrowed gradually distally and with rather short to moderately long bristles; aedeagus unusually swollen basally (Figs 109*b* and 110*o*).

**Discussion.** The metanotal mucro is unique in the New World, although it is not uncommon among Old World groups. Other characters of significance are the W-shaped TFC, unusual form of the scrobal sulcus, and sub-bidentate mesopleuron. The three species of the group are all in the New World, with *propingua* and *nisseri* occupying the Neotropical Region, and *laminifera* the Nearctic.

***Chrysis oreadis* group** (Figs 106*p* and 114*n*)

**Diagnosis.** F-I l/w (male) 1.4–1.8, (female) 2.4–3.0; face somewhat transversely striatopunctate; TFC distinct, biconvex above, and recurved below around a slightly raised area; mid ocellar area not defined; malar space 2–3 MOD; subantennal space 1.0–1.5 MOD; eye to genal carina 1.1–1.3 MOD; propodeal angle slender, sharp, incurved behind; T-I three-fifths as long medially as broad; T-III narrow and roof-like in cross section, with four simple, stout, sharp teeth, outer pair somewhat receding, lateral edge of T-III simple, with moderate pit row, weakly depressed medially; S-II spots narrow or linear, separated by about 1 MOD (Fig. 106*p*); male terminalia (Fig. 114*n*).

**Hosts.** These chrysidids parasitize eumenid twig nesters; *Leptochilus electus* Cresson for *schlettereri*, and *L. tosquineti* (Cameron) for *daedala* (F. D. Parker, personal communication).

**Discussion.** The 'spectacle-like' TFC, moderately long malar space, roof-like T-III apex, and narrow S-II spots separate these small *Chrysis* from others in the New World.

*Chrysis schlettereri* is unusual in having the abdomen mostly coppery red above, as in many Palaearctic species. The three known species of the group are Nearctic.

***Chrysis pattoni* group** (Figs 109*o* and 114*i*)

**Diagnosis.** F-I l/w (male) usually 1.0, sometimes as much as 1.8, a little longer than F-II, shorter than F-III or rarely equal, (female) 2–3; face mostly punctate or microridged medially; TFC distinct and biconvex; mid ocellar area not defined; malar space 1.0–2.5 MOD; subantennal space about 1.0; eye to genal carina 0.5–1.0 MOD; propodeal angle moderate, sharp, and incurved behind; T-III apex nearly always with four sharp, acutely angled teeth, lateral edge of T-III (male) at least a little concave and convex basally, (female) slightly convex basally, pit row moderately developed; S-II spots obovate, close together. Male terminalia: S-VIII rather strongly narrowed in apical half, gonocoxa usually emarginate posteriorly, with either an angular cleft or a round and deep concavity (Fig. 114*i*).

**Hosts.** The twig-nesting eumenids, *Parancistrocerus*, *Ancistrocerus*, *Euodynerus*, *Symmorphus*, *Microdynerus*, and *Leptochilus* have been recorded as hosts of *derivata*, *irwini*, and *pattoni* (Bohart 1966*c*, Krombein 1967, Parker 1970, Parker and Bohart 1966).

**Discussion.** This group is not an especially cohesive one, considering the variation in male F-I–III, facial sculpture, malar space, and gonocoxa (simple in *pattoni*). On the other hand, most of the species agree with most of the characters, particularly the shape of the lateral edge of T-III in the male, and the general agreement in gonocoxal form. This group is Nearctic and is found mostly west of the 100th meridian.

***Chrysis pellucidula* group** (Figs 106*e* and 114*c*)

**Diagnosis.** F-I l/w 2.2–2.5; face unusually short and without microridging; TFC an inverted broad U; mid ocellar area not defined; mid ocellus lidded; malar space about 1.5 MOD; subantennal space 0.6 MOD; eye to genal carina about 0.2 MOD; propodeal angle short, stout, pointed, and a little convex behind; T-III apically with four simple, short, sharp teeth, lateral edge simple, pit row usually deep, pits largely confluent (Fig. 106*e*); S-II spots rounded and well separated. Male terminalia: S-VIII narrowly trianguloid, gonocoxa of unique form, with prominent inner, basal, setose lobe (Fig. 114*c*).

**Hosts.** Two species of *Trypargilum*, *collinum* (Pack.) and *tridentatum* (Pack.), (Sphecidae) have been recorded as hosts of *pellucidula* (Krombein 1979).

**Discussion.** The short and punctate face, moderately long F-I, simple TFC, lidded mid ocellus, short subantennal space, rather long pronotum, and odd gonocoxa are important characters. Most specimens can be recognized at once by the 'routed out' translucent appearance of the T-III pit row. However, we have seen specimens from Texas with a more ordinary pit arrangement. Collection records are from much of the USA and northern Mexico.

*Chrysis propria* group (Figs 106*k* and 109*d*)

**Diagnosis.** F-I l/w 2.0–2.5; face microridged medially; TFC broadly M-like, sometimes weak; mid ocellar area depressed and usually well defined; mid ocellus sometimes lidded; malar space 0.5 MOD or less, rarely 1.5 MOD; subantennal space 1–2 MOD; eye to genal carina 0–0.2 MOD (Fig. 106*k*); propodeal angle mostly short, pointed or sharp, incurved behind; T-III apically with four simple or slightly double, sharp teeth, and a lateral expansion which may be dentiform, lateral edge of T-III slightly convex basally, pit row distinct, pits sometimes large and/or confluent; S-II spots usually separated by 1–2 MOD; male terminalia (Fig. 109*d*).

**Hosts.** According to Bohart and Kimsey (1982), *propria* has been reared from the twig-nesting eumenids, *Ancistrocerus* and *Leptochilus*.

**Discussion.** In this Nearctic group of six small to medium-sized chrysidids diagnostic characteristics are the microridged scapal basin, short malar space, short distance from eye to genal carina, lateral expansion of the T-III apex, and stout gonocoxa. Two of the species might be candidates for monobasic groups. One of these, *aridula*, has six sharp teeth at the T-III apex. However, its other features fit the group rather well. The other odd species (*rivalis*) has the mid ocellus unlidded, and T-III only slightly expanded apicolaterally, although other characters, including male terminalia, are typical of the group. The exceptionally reduced eye to genal carina space seems to have resulted from an anterolateral expansion of the eye.

*Chrysis remissa* group (Figs 106*i*, *j*, 109*n*, and 114*g*)

**Diagnosis.** F-I l/w 2.5; face finely carinulate medially; TFC distinct, biconvex; mid ocellar area weakly indicated; mid ocellus weakly lidded; malar space 1 MOD; subantennal space 1.2–1.3 MOD; eye to genal carina 0.8 MOD; vertex of females and some males with a pair of microsculptured swellings behind ocellar area (Fig. 106*j*); propodeal angle pointed, incurved behind; T-III apically with four sharp, narrowly double-edged teeth, lateral edge straight or somewhat concave, pit row well developed (Fig. 106*i*); S-II spots rounded, separated by 2 MOD. Male terminalia: S-VIII strongly narrowed, with short setae in posterior half; gonocoxa stout, with long setae on slanting apex (Fig. 114*g*); digitus unusually shaped (Fig. 109*n*).

**Discussion.** Several features of *remissa*, such as the short malar space, narrowly double-edged T-III teeth, and stout gonocoxa are also found in the *propria* group. Arguing against its inclusion in that group are the broader eye to genal carina space, post-ocellar swellings, no lateral expansion of the T-III apex, and the slender posterior half of S-VIII. Collection records are from the USA and northern Mexico.

*Chrysis tenuicornis* group (Figs 106*b*, *d* and 114*m*)

**Diagnosis.** F-I l/w 8–10; face coarsely cross-ridged medially, TFC a broad inverted U; mid ocellar area faintly indicated; malar space (male) 3 MOD, (female) 4 MOD, face unusually broad across malar area, especially in female (Fig. 106*b*); subantennal space

1.2–1.3 MOD; eye to genal carina 0.9 MOD; propodeal angle blunt, incurved behind; T-I unusually short medially; T-II with a fine, irregular ridge; T-III apically with six sharp simple teeth (rarely only four), outer two pairs quite lateral, edge basal to teeth short and a little sinuate, pit row strongly curved forward medially where it is not impressed (Fig. 106*d*); S-II spots separate and weakly defined. Male terminalia: S-VIII U-shaped; gonocoxa quite slender posteriorly with a large sub-basal, knob-like protuberance (Fig. 114*m*).

**Discussion.** The only species in this group, *tenuicornis*, is most peculiar. The female head is unusually large and broad across the malar region (Fig. 106*b*), F-I is quite long and slender, pronotum and T-I short medially, T-III with six posterior teeth arranged in a strong arc, pit row curved forward medially (Fig. 106*d*), and male terminalia unique for a six-toothed species. There seem to be no close relatives. This species occurs in the western Nearctic Region from British Columbia to Jalisco, Mexico.

#### *Chrysis varia* group (Figs 106*b* and 114*b*)

**Diagnosis.** F-I l/w (male) 2.5, (female) 2.9; face mostly polished and weakly cross-ridged in medial three-fifths; TFC distinct, biconvex and a little recurved below; mid ocellar area weakly defined; malar space 1.2 MOD; subantennal space 0.8 MOD; eye to genal carina 0.9 MOD; metanotum a little rough and protuberant; propodeal angle sharp, incurved behind; T-I medially about one-third as long as broad; T-III pit row well developed, broadly divided medially; T-III apex with four rather short but sharp, single teeth (Fig. 106*b*), cross section (posteriorly) roof-like, lateral edge simple; S-II spots round, separated by about 4 MOD; S-III exposed in male. Male terminalia: S-VIII elongate U-like, gonocoxa strongly narrowed in setose posterior half (Fig. 114*b*).

**Discussion.** In some respects *varia* resembles species of the *oreadis* group, having a rather long F-I, recurved TFC, rather similar T-III formation, and similar gonocoxa. Important points of difference are, in *varia*, the mostly polished face, shorter malar space, rough metanotum, much shorter and broader T-I, different S-II spots, and stouter S-VIII. *Chrysis varia* occurs in the Neotropical Region.

#### *Chrysis venusta* group (Figs 106*t*, 108*j*, and 114*l*)

**Diagnosis.** F-I l/w (male) 1.0, F-II 0.6, F-III 1.5, F-I+II a little longer than F-III (Fig. 106*t*), (female) 1.6–2.0; face microridged in median half to two-thirds; TFC distinct, a broad inverted U; mid ocellar area weakly defined; mid ocellus sometimes weakly lidded; malar space 0.5–1.0 MOD; subantennal space 1.0–1.2 MOD; eye to genal carina 0.6–0.8 MOD; propodeal angle short, stout, pointed, incurved behind; T-III not appreciably saddled, apex with four sharp, double-edged teeth (Fig. 108*j*), lateral edge simple, pit row deep and curved forward medially where pits are large or confluent; S-II spots long oval and separated by 1–2 MOD. Male terminalia: S-VIII narrowed in posterior half (least so in *venustella*), gonocoxa rather deeply cleft posteriorly (Fig. 114*l*).



**Discussion.** The double-edged T-III teeth character is rather distinctive, especially in combination with the short male F-I-II, short malar space, and divided gonocoxa. The last two features distinguish it from the *antennalis* group. In addition, *venusta* and relatives are more robust than those in the other group. These species are Nearctic, although *guatemalana* was collected in the mountains of Central America.

## Checklist of *Chrysis*

---

*abeillei* Gribodo. Palaearctic: Middle East.

*abeillei* Gribodo 1879:332. Holotype female; Syria (GENOA). (*viridissima* group).\*

*aberrans* Mocsáry. Afrotropical: South Africa, Namibia, Zimbabwe, Gambia.

*aberrans* Mocsáry 1902b:546. Holotype male; South Africa: Orange Free State, Bothaville (PRETORIA-TM). (*bihamata* group).\*

*abuensis* Nurse. Oriental: India.

*abuensis* Nurse 1902:307. Syntype male, female; India: Mt. Abu (LONDON). (*capitalis* group).\*

*acanthophora* (Bischoff). Palaearctic: Himalaya Mts.

*acanthophora* (Bischoff) 1910:473. (*Tetrachrysis*). Holotype female; Himalaya (BERLIN).

*adonis* Zimmermann. Afrotropical: Madagascar.

*adonis* Zimmermann 1956:153. Lectotype female (desig. Kimsey 1986c); Madagascar: Bekily (PARIS). (*succincta* s.s. group).

*aegle* Semenov. Palaearctic: Mongolia.

*aegle* Semenov 1967:165. Holotype female; Mongolia: Alashan, Maladzhin (LENINGRAD).\*

*aello* Semenov and Nikol'skaya. Palaearctic: s USSR.

*aello* Semenov and Nikol'skaya 1954:185. Holotype male; Tadzhik SSR: Miķoyanabad (LENINGRAD). (*viridula* group).\*

*aeraria* Mocsáry. Palaearctic: Middle East.

*aeraria* Mocsáry 1914:12. Holotype female; Turkey: Hadji Tsholu (BUDAPEST). (*bihamata* group).\*

*aestiva* Dahlbom. Palaearctic: Middle East, Greece.

*aestiva* Dahlbom 1854:286. Holotype; Greece: Rhodes Isl. (BERLIN). (*aestiva* group).

*quadrifasciata* (Bischoff) 1910:481. (*Tetrachrysis*). Holotype male; Greece: Rhodes Isl. (BERLIN).\*

*moczari* Linsenmaier 1959a:122. Holotype male; Israel: Jerusalem (LUZERN).

*aethiopica* Mocsáry. Palaearctic: Ethiopia.

*dubia* Radoszkowski 1876b:148. Holotype; Ethiopia (KRAKOW ?). Nec Rossi 1790.

*aethiopica* Mocsáry 1889:362. Repl. name for *dubia* Radoszkowski 1876b. (*ignita* group).

*afghanica* Linsenmaier. Palaearctic: Afghanistan.

*afghanica* Linsenmaier 1968:68. Repl. name for *succincta komareki udalrichi* Balthasar 1957:152 (unavailable quadrinomial). Holotype female; Afghanistan: Duab (PRAGUE). (*succincta* s.s. group).

*agilis* Smith. Australian: Australia (*widespread*).

*agilis* Smith 1874b:462. Holotype female; Australia: Queensland (LONDON). (*smaragdula* group).\*

*brevicollis* Mocsáry 1899:490. Holotype female; Australia: Queensland, Cooktown (BUDAPEST). N. synonymy.\*

*dirce* Mocsáry 1914:69. Holotype male; Australia: Queensland, Townsville (LONDON). N. synonymy.\*

*familiaris* Mocsáry 1914:68. Holotype female; Australia: Queensland, Moretown Bay (LONDON). N. synonymy.\*

*rostravorana* (Linsenmaier) 1982:344. (*Hexachrysis*). Holotype female; South Australia, Rostrevor (LUZERN). N. synonymy.

*alaica* Mocsáry. Palaearctic: s USSR.

*alaica* Mocsáry 1912:588. Holotype female; USSR: Turkestan, Mt. Alai (BUDAPEST). (*ignita* group).\*

*albanica* Trautmann. Palaearctic: se Europe, Middle East.

*albanica* Trautmann 1927:100. Type ?; Albania (BERLIN ?). (*succincta* s.s. group).

*alia* Linsenmaier 1959a:114. (*albanica* ssp.). Holotype male; Turkey: Konia (Konya) (LUZERN).

*albipilis* Mocsáry. Palaearctic: Egypt.

*albipilis* Mocsáry 1889:366. Holotype male; Egypt (GENEVA). (*ignita* group).

*albitarsis* Mocsáry. Palaearctic: North Africa.

*albitarsis* Mocsáry 1889:252. Holotype male; Algeria: Setif (GENEVA). (*cuprata* group).\*

*meyeri* Linsenmaier 1959a:137. Holotype female; Algeria (LUZERN).

*alecto* Edney. Afrotropical: South Africa, Namibia, Zimbabwe, Sudan.

*alecto* Edney 1954a:561. Holotype female; Zimbabwe: Selukwe (CAPE TOWN). (*comparata-gibba* group).\*

*alfieri* (Trautmann). Palaearctic: Egypt.

*alfieri* (Trautmann) 1926b:91 (*Pseudochrysis pallidicornis* var.). Lectotype female (desig. Bohart herein); Egypt (BERLIN). (*comparata* group).\*

*allabora* Linsenmaier. Palaearctic: Middle East.

*allabora* Linsenmaier 1968:88. Holotype female; 'Palestine': Mezada (LUZERN). (*bihamata* group).

*allectoris* Bohart. Nearctic: central and e USA.

*allectoris* Bohart 1982:102. Holotype male; USA: Michigan, Midland (DAVIS). (*succincta* s.s. group).\*

*alma* Semenov. Palaearctic: s USSR.

*alma* Semenov 1967:167. Holotype male; Kazakh SSR: Baigakum (LENINGRAD). (*comparata* s.s. group).\*

*alta* Bohart. Neotropical: Peru.

*alta* Bohart 1985b:91. Holotype male; Peru: Cusco (CUZCO). (*comparata-gibba* group).\*

*altaica* Mocsáry. Palaearctic: Mongolia, s USSR.

*altaica* Mocsáry 1912b:586. Holotype female; Mongolia: Altai Mts. (BUDAPEST). (*comparata* s.s. group).\*

*turkestana* Semenov 1954a:117. (*analys* ssp.). Holotype female; Kazakh SSR: Baigakum (LENINGRAD). N. synonymy.\*

*alternans* Dahlbom. Afrotropical: widespread.

*alternans* Dahlbom 1854:236. Lectotype female (desig. Bohart herein); South Africa: 'Cape of Good Hope' (COPENHAGEN). (*alternans* group).\*

*peringuezi* Mocsáry 1890:64. Holotype female; South Africa: Cape Prov. (CAPE TOWN ?). N. synonymy.

*striata* Mocsáry 1890:59. Holotype female; South Africa: Cape Prov. (CAPE TOWN). N. synonymy.

*asmarana* Mocsáry 1913a:16. Lectotype female (desig. Bohart 1986b:); Ethiopia: Eritrea, Asmara (BUDAPEST). N. synonymy.\*

*alticata* Bohart. Palaearctic: China.

*alticola* Mocsáry 1914:42. Holotype female; China (LONDON). Nec Semenov 1912.\*

*alticata* Bohart. N. repl. name for *alticola* Mocsáry 1914. (*ignita* group).

*amala* Rohwer. Nearctic: w USA, Canada (Saskatchewan).

*amala* Rohwer 1909:91. Holotype female; USA: Colorado, Florissant (WASHINGTON). (*pattoni* group).\*

*amasina* Mocsáry. Palaearctic: s Europe, Middle East, North Africa.

*amasina* Mocsáry 1889:495. Holotype female; Turkey: Amaysia (DRESDEN, destroyed). (*rufitarsis* group).

*schmiedeknehti* Trautmann 1927:94. (*amasina* var.) Type ?; Greece: Corfu Isl. (BERLIN).

*ambigua* Radoszkowski. Palaearctic: s USSR, Middle East, s Europe.

*ambigua* Radoszkowski 1891:188. Holotype female; Turkmen SSR: Ashkabad (KRAKOW ?). (*taczanovskii* group).

*amneris* Balthasar. Palaearctic: Middle East, s USSR, Sudan.

*amneris* Balthasar 1953:227. Holotype male; Jordan: Wadi el Kelt (PRAGUE). (*amneris* group).

*clypeata* (Balthasar) 1953:171. (*Cornuchrysis*). Holotype female; Jordan: Wadi el Kelt (PRAGUE). Nec Mocsáry 1889.

*arnoldi* Semenov 1967:175. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD).

Nec Brauns 1928. N. synonymy.\*

*amphinome* Zimmermann. Palaearctic: Sudan (Nile River).

*amphinome* Zimmermann 1963:415. Holotype male; Sudan: Nilkataract (VIENNA).\*

*amulana* Mocsáry. Nearctic: Mexico.

*amulana* Mocsáry 1914:55. Holotype male; Mexico: Guerrero, Amula (LONDON).\*

*amurensis* Semenov. Palaearctic: e USSR.

*amurensis* Semenov 1967:165. Holotype male; USSR: Sikhota Alin, mid Amur River (LENINGRAD). (*aestiva* group).\*

*analís* Spinola. Palaearctic: s Europe, North Africa, Middle East, s USSR.

*analís* Spinola 1808:26. Type ?; Italy: Liguria (TURIN ?). (*comparata* s.s. group).

*flavitaris* Förster 1853:310. Holotype female; s France (BERLIN ?).

*marginalis* Schenck 1856:31. Type ?; Germany: Nassau region (FRANKFURT). Nec Brullé 1846.

*dahlbomi* Chevrier 1862:64. Type ?; Switzerland: Lemman area (Mus. ?).

*cribrata* Gerstaecker 1869:186. Holotype female; Germany: Ober-Karnten (Mus. ?).

*perrisi* Radoszkowski 1880:144. (*analís* var.). Holotype male; USSR: 'Caucasus' (KRAKOW ?).

*rubescens* Radoszkowski 1880:144. (*analís* var.). Type ?; USSR: 'Caucasus' (KRAKOW ?).

*perrinii* Radoszkowski 1889:25. Invalid emendation of *perrisi* Radoszkowski 1880.

*caucasica* Mocsáry 1912b:586. (*analís* var.). Holotype female (not male); 'Caucasus': Adjikent (BUDAPEST). Nec Radoszkowski 1876a:.\*

*confalonierii* Invrea 1929:305. (*analís* var.). Type ?; Libya: Cyrenaica (GENOA).

*caucasiensis* Linsenmaier 1959a:146. Repl. name for *analís caucasica* Mocsáry 1912.

*caucasicola* Semenov 1967:166. (*analís* ssp.). Holotype female; Georgian SSR: Lagodechi (LENINGRAD).\*

*perapedia* Linsenmaier 1968:93. (*caucasiensis* ssp.). Holotype female; Cyprus: Para Pedi (LUZERN).

*anceyi* Buysson. Palaearctic: Algeria.

*anceyi* Buysson 1888:6. Holotype female; Algeria: Oran Prov., Mascara (Mus. ?). (*succincta* s.s. group).

*andradei* Linsenmaier. Palaearctic: Portugal.

*andradei* Linsenmaier 1959a:105. Holotype female; Portugal: Rezende (LUZERN). (*pulchella* group).

*andreevi* Semenov and Nikol'skaya. Palaearctic: s USSR.

*andreevi* Semenov and Nikol'skaya 1954:133. Lectotype male (desig. Bohart herein); USSR: Tadzhik SSR: Mikoyanabad (LENINGRAD). (*aestiva* group).\*

*andromeda* Gribodo. Afrotropical: Tanzania, Namibia, Botswana, South Africa.

*andromeda* Gribodo 1884a:314. Lectotype female (desig. Bohart herein); Tanzania: Zanzibar



(GENOA). (*smaragdula* group).\*

*eucharis* Mocsáry 1913a:38. Holotype male; Tanzania (BUDAPEST).\*

*duplicata* Mocsáry 1913a:40. Holotype female; Namibia: Grotfontein (BUDAPEST).\*

*angolensis* Radoszkowski. World-wide except Europe.

*angolensis* Radoszkowski 1881b:219. Holotype; Angola (KRAKOW ?). (*angolensis* group).

*fuscipennis* Brullé 1846:38. Holotype female; Philippines (PARIS). Nec Dahlbom 1829.\*

*janthina* Smith 1874b:459. Holotype female; China: Shanghai (LONDON). Nec Förster 1853.\*

*callaina* Gribodo 1884a:319. Holotype male; Ethiopia: Daimbi (GENOA).\*

*erratica* Buysson 1887b:189. Syntype male, female; China, Egypt (PARIS ?).

*mossulensis* Buysson 1887b:190. (*erratica* var.). Syntype females; Iraq: Mossula (Mossoula) (PARIS).\*

*pulchella* Cameron 1887:126. Holotype; Sri Lanka (LONDON). Nec Spinola 1808.\*

*dorsata* Buysson 1896a:472. (*fuscipennis* var.). Syntype females; India: Bombay, Poona (Mus. ?). Nec Brullé 1833.

*sulcifera* (Bischoff) 1910:469. (*Tetrachrysis*). Holotype female; South Africa: Cape Prov. (BERLIN). N. synonymy.\*

*szalayana* Mocsáry 1912a:397. Lectotype male (desig. Bohart 1986b); Ethiopia: Shirati (BUDAPEST). N. synonymy.\*

*ukerewensis* Mocsáry 1914:34. Holotype male; Tanzania: Ukerewe, Katona (BUDAPEST).\*

*murasaki* Uchida 1927:155. (*fuscipennis* var.). Syntype males, females; Japan, Korea (HOKKAIDO).

*takanoi* Tsuneki 1950:78. (*fuscipennis* f.). Holotype female; Taiwan: Shinka (TSUKUBA).

*bilobipleuralis* Linsenmaier 1982:339. Holotype female; Australia: Western Australia, Belmont (LUZERN). N. synonymy.

*angustata* Mocsáry. Oriental: Burma.

*angustata* Mocsáry 1893:225. Holotype female; Burma ('Birma') (Mus. ?). (*ignita* group).

*angustifrons* Abeille. Palaearctic: s Europe, Middle East.

*angustifrons* Abeille 1878:5. Holotype male; France (PARIS ?). (*elegans* group).

*carinaeventris* Mocsáry 1882:84. Holotype female; central Hungary (Mus. ?).

*lagodechii* Radoszkowski 1889:15. Type ?; USSR: Caucasus (KRAKOW ?).

*susterae* Balthasar 1943:48. (*angustifrons* var.). Type ?; Czechoslovakia; (PRAGUE).

*agitata* Linsenmaier 1959a:138. (*angustifrons* ssp.). Holotype female; Turkey: Sullan Dag (LUZERN).

*angustella* Bohart. Afrotropical: South Africa.

*angustula* Mocsáry 1908b:514. Lectotype female (desig. Bohart herein); South Africa: Willowmore (BUDAPEST). Nec Schenck 1856.\*

*angustella* Bohart. N. repl. name for *angustula* Mocsáry 1908b. (*delicatula* group).

*angustula* Schenck. Palaearctic: Europe, Siberia.

- angustula* Schenck 1856:28. Lectotype sex ? (desig. Morgan 1984); Germany: Nassau region (FRANKFURT).
- gracilis* Schenck 1856:30. (*angustula* var.). Type ?; Germany: Nassau region (FRANKFURT).
- brevidens* Tournier 1879:96. Syntype male, female; Switzerland: Geneva (GENEVA).
- solida* Haupt 1956:115. Syntypes; central Europe, Turkey, Algeria (Mus. ?).
- annamensis* Mocsáry. Oriental: Viet Nam.
- annamensis* Mocsáry 1889:377. Holotype female; Vietnam: Annam (KRAKOW ?).
- annulata* Buysson. Palaearctic: s Europe, North Africa, Middle East, Pakistan.
- annulata* Buysson 1887b:192. Holotype male, Israel: Tiberiade (PARIS). (*maculicornis* group).\*
- balucha* Nurse 1903b:41. Syntype males; Pakistan: Quetta (Mus. ?).
- anoma* Bohart. Palaearctic: North Africa (Algeria), Middle East.
- anomala* Mocsáry 1893:231. Holotype female; Algeria (VIENNA). (*bihamata* group). Nec Block 1799.
- anoma* Bohart. N. repl. name for *anomala* Mocsáry 1893.
- antakyensis* Linsenmaier. Palaearctic: Turkey.
- antakyensis* Linsenmaier 1968:67. Holotype female, Turkey: Antakya (LUZERN). (*aestiva* group).
- antennalis* Mocsáry. Nearctic: Canada (British Columbia), USA; Neotropical: Central America.
- antennalis* Mocsáry 1912b:564. Holotype male; Mexico: Chihuahua, Presidio (BUDAPEST). (*antennalis* group).\*
- anonyma* Mocsáry 1912b:569. Holotype female; Costa Rica (BUDAPEST). N. synonymy.\*
- stenodyneri* Krombein 1958a:150. Holotype female; USA: North Carolina, Dare Co., Kill Devil Hills (WASHINGTON).\*
- antennata* Mocsáry. Afrotropical: Ethiopia to South Africa.
- antennata* Mocsáry 1912a:389. Holotype male; Ethiopia: Eritrea, Guinda (BUDAPEST). (*antennata* group).\*
- antiqua* (Brauns). Afrotropical: South Africa, Basutoland.
- antiqua* (Brauns) 1928:390. (*Chrysidium*). Holotype female; South Africa: Cape Prov., van Rhynsdorp (PRETORIA- TM). (*rufitarsis* group).\*
- apicalis* Radoszkowski. Palaearctic: sw USSR.
- apicalis* Radoszkowski 1880:146. Type ?; USSR: 'Caucasus' (KRAKOW ?) (*succincta* s.s. group).
- apontis* Bohart. Nearctic: w USA.
- apontis* Bohart 1982:126. Holotype male; USA: California, Mono Co., 5 mi n Coleville (DAVIS). (*ignita* group).\*

*apricata* Bohart. Oriental: Celebes.

*apricans* Smith 1860:66. Holotype female; Celebes: Makassar (OXFORD). Nec Gravenhorst 1807.\*

*apricata* Bohart. N. repl. name for *apricans* Smith 1860. (*smaragdula* group).

*arachne* Mocsáry. Oriental: Java.

*arachne* Mocsáry 1913a:27. Holotype male; Java (BUDAPEST). (*smaragdula* group).\*

*arabica* Mocsáry. Palaearctic: Middle East.

*arabica* Mocsáry 1911b:470. Holotype male; Aden: Lahej (BUDAPEST). (*capitalis* group).\*

*araratica* Radoszkowski. Palaearctic: s USSR, Iran, Turkey.

*araratica* Radoszkowski 1890:509. Holotype male; Turkey: Buyuk Agri Dagı (Mt. Ararat) (KRAKOW). (*comparata*-*scutellaris* group).\*

*araxana* Mocsáry. Palaearctic: sw USSR.

*araxana* Mocsáry 1893:230. Holotype male; USSR: 'Caucasus' (VIENNA). (*ignita* group).

*archboldi* Kimsey. Nearctic: USA (Florida), Mexico (Zacatecas).

*archboldi* Kimsey 1982:137. Holotype male; USA: Florida, Alachua Co., Austin Cary Memorial Forest (DAVIS). (*smaragdula* group).\*

*areata* Mocsáry. Afrotropical: Madagascar.

*areata* Mocsáry 1889:361. Holotype female; Madagascar (BUDAPEST). (*westermanni* group).\*

*aridula* Bohart. Nearctic: w USA.

*aridula* Bohart 1962:364. Holotype male; USA: Arizona, Bowie (DAVIS). (*propria* group).\*

*arizonica* Bohart. Nearctic: sw USA.

*arizonica* Bohart 1962:366. Holotype male; USA: Arizona, Santa Clara Co., Ruby (DAVIS). (*smaragdula* group).\*

*arnoldi* Brauns. Afrotropical: South Africa.

*arnoldi* Brauns 1928:386. Lectotype female (desig. Bohart herein); South Africa: Cape Prov., van Rhynsdorp (PRETORIA- TM). (*rufitarsis* group).\*

*arnoldina* Bohart. Palaearctic: s USSR.

*arnoldii* Semenov 1967:175. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). Nec Brauns 1928.\*

*arnoldina* Bohart. N. repl. name for *arnoldii* Semenov 1967.

*arrestans* Nurse. Oriental: India.

*arrestans* Nurse 1903b:42. Holotype female; India: Bombay, Deesa (LONDON). (*smaragdula* group).\*

*asabinai* Tsuneki. Palaearctic: Manchuria.

*asabinai* Tsuneki 1950:80. Holotype female; Manchuria (OSAKA). (*pulchella* group).

*ashabadensis* Radoszkowski. Palaearctic: s USSR, Iran, Middle East.

*ashabadensis* Radoszkowski 1891:183. Holotype male; Turkmen SSR: Ashkabad (KRAKOW ?). (*elegans* group).

*aspredinis* Bohart. Afrotropical: South Africa.

*aspredinis* Bohart 1988d:276. Holotype male; South Africa: Cape Prov., van Rhynsdorp (PRETORIA-TM). (*splendens* group).\*

*asiatica* Radoszkowski. Palaearctic: s USSR.

*asiatica* Radoszkowski 1889:26. Holotype male; Uzbek SSR: Tashkent, Sarafschan Valley (KRAKOW ?). (*comparata* s.s. group).

*australia* Bohart. Nearctic: w USA, nw Mexico.

*australia* Bohart 1964:233. Holotype male; USA: California, Davis (DAVIS). (*venusta* group).\*

*atechka* Buysson. Palaearctic: Egypt.

*atechka* Buysson 1898a:131. Lectotype male (desig. Bohart herein); Egypt: Zeitoun, Abasich (OXFORD). (*pulchella* group).\*

*atrachlypeata* Linsenmaier. Palaearctic: Morocco.

*atrachlypeata* Linsenmaier 1968:89. Holotype female; Morocco: Asni (LUZERN). (*bihamata* group).

*nevadensis* Linsenmaier 1987:151. (*atrachlypeata* ssp.). Holotype female; Spain: Sierra de Chaparal, Sierra Nevada (LUZERN).

*atrata* (Bischoff). Oriental: Philippines.

*atrata* (Bischoff) 1910:474. (*Tetrachrysis*). Holotype male; Philippines: Luzon (BERLIN). (*ignita* group).\*

*atrypa* Bohart. Neotropical: Peru.

*atrypa* Bohart 1985b:91. Holotype male; Peru: Lima Prov., Palle (TUCUMAN). (*comparata-gibba* group).\*

*audouinii* Blanchard. Afrotropical: Madagascar.

*audouinii* Blanchard 1840:295. Type ?; Madagascar (PARIS ?). (*smaragdula* group).

*semiaurata* Brullé 1846:28. Holotype male; Madagascar (PARIS).\*

*chrycina* Saussure 1887:26. Holotype female; Madagascar (GENEVA).

*aurelia* Balthasar. Palaearctic: Middle East.

*aurelia* Balthasar 1953:233. Holotype male; Israel: Jerusalem (PRAGUE). (*aestiva* group).\*\*

*palmachinensis* Linsenmaier 1987:149. (*aurelia* ssp.). Holotype female; Jordan: Palmachim (LONDON).

*aureomaculata* Dahlbom. Afrotropical: Congo, Zaire, Central African Rep.

*aureomaculata* Dahlbom 1854:239. Lectotype male (desig. Bohart herein); 'Guinea' (COPENHAGEN). (*aureomaculata* group).\*



*auriceps* Mader. Palaearctic: s Europe, Middle East.

*auriceps* Mader 1936:288. Type ?; Italy (Mus. ?). (*succincta-leachii* group).

*aurifascia* Brullé. Afrotropical: widespread.

*aurifascia* Brullé 1846:40. Type ?; South Africa: Cape Prov. (TURIN ?). (*comparata-scutellaris* group).

*callizona* Mocsáry 1904:411. Lectotype male (desig. Bohart 1986b:); South Africa: Cape Prov., Willowmore (BUDAPEST).\*

*aurimacula* Mocsáry. Palaearctic: Algeria.

*aurimacula* Mocsáry 1889:421. Holotype male; Algeria (Perez Coll.).

*aurimaculifrons* Linsenmaier. Palaearctic: Turkey.

*aurimaculifrons* Linsenmaier 1968:135. Holotype female; Turkey (LUZERN). (*succincta* s.s. group).

*aurofacies* (Trautmann). Palaearctic: Spain.

*aurofacies* (Trautmann) 1926a:9. (*Gonochrysis gracillima* var.). Lectotype male (desig. Bohart herein); Spain: Castile, Montarco (BERLIN). (*varidens-gracillima* group).\*

*aurolimbata* Mocsáry. Afrotropical: central Africa.

*aurolimbata* Mocsáry 1889:421. Holotype female; Mali: Ashanti (BUDAPEST). (*maindroni* group).\*

*auronitens* (Mocsáry). Afrotropical: South Africa.

*auronitens* (Mocsáry) 1904a:405. (*Chrysis*). Holotype female; South Africa: Willowmore (PRETORIA-TM). (*exsecata* group).\*

*auropunctata* Mocsáry. Oriental: se Asia.

*auropunctata* Mocsáry 1889:474. Holotype female; Vietnam: Annam (KRAKOW ?).

*aurotecta* Abeille. Palaearctic: s Europe, North Africa.

*aurotecta* Abeille 1878:3. Lectotype female (desig. Kimsey 1986c:); Italy: Sardinia (PARIS). (*splendidula* s.s. group).\*

*continentalis* Linsenmaier 1959b:238. (*aurotecta* ssp.). Holotype male; France: Ver (LUZERN).

*aurula* Bohart. Palaearctic: Middle East.

*aurulenta* Mocsáry 1889:472. Holotype male; 'Asia Minor' (BUDAPEST). (*pallidicornis* group). Nec Curtis 1824.\*

*aurula* Bohart. N. repl. name for *aurulenta* Mocsáry 1889.

*ausae* Bohart. Australian: ne Australia.

*ausae* Bohart 1985a:49. Holotype male; Australia: Northern Territory, Kakadu National Park (CANBERRA). (*interceptor* group).\*

*australis* Bohart. Australian: s and sw Australia.

*australis* Bohart 1985a:50. Holotype male; Australia: Western Australia, Perth (PERTH). (*impostor* group).\*

*autocrata* Nurse. Palaearctic: Pakistan.

*autocrata* Nurse 1903b:40. Lectotype female (desig. Bohart herein); Pakistan: Quetta (LONDON). (*succincta* s.s. group).\*

*babadur* Nurse. Palaearctic: Pakistan.

*babadur* Nurse 1903a:11. Lectotype female (desig. Bohart herein); Pakistan: Kashmir (LONDON). (*ignita* group).\*

*balearica* Linsenmaier. Palaearctic: Spain.

*balearica* Linsenmaier 1968:66. Holotype female; Spain: Mallorca, Palma (LUZERN). (*succincta* s.s. group).

*baliana* Mocsáry. Oriental: Indonesia.

*baliana* Mocsáry 1913a:26. Holotype female; Indonesia: Bali Isl. (BUDAPEST). (*smaragdula* group).\*

*barri* Bohart. Nearctic: w USA.

*barri* Bohart 1966c:132. Holotype male; USA: Nevada, 10 mi s Wendover (DAVIS). (*pattoni* group).\*

*basalis* Dahlbom. Palaearctic: Algeria.

*basalis* Dahlbom 1854:106. Holotype ?; Algeria (TURIN). (*millenaris* group).

*basilacuna* Sugihara. Oriental: Taiwan.

*basilacuna* Sugihara 1932:372. Type ?; Taiwan (Mus. ?).

*basiliana* Semenov. Palaearctic: s USSR.

*basiliana* Semenov 1967:152. Holotype male; Kazakh SSR: Baigakum (LENINGRAD). (*millenaris* group).\*

*batyamensis* Linsenmaier. Palaearctic: Middle East.

*batyamensis* Linsenmaier 1969:376. Holotype female; Jordan: Bat Yam (LUZERN). (*millenaris* group)

*bayadera* Buysson. Oriental: India.

*bayadera* Buysson 1896:470. Lectotype female (desig. Bohart herein); India: Poona (PARIS). (*capitalis* group).\*

*beckmanniana* Semenov. Palaearctic: s USSR.

*beckmanniana* Semenov 1910:221. Syntype males; Kazakh SSR Syr-Daria, Dzhulek (LENINGRAD ?).

*begam* Mocsáry. Palaearctic: ne India.

*begam* Mocsáry 1912b:554. Holotype female; India: Sikkim (BUDAPEST). (*succincta* s.s. group).\*

*benghasiensis* Linsenmaier. Palaearctic: North Africa.

*benghasiensis* Linsenmaier 1968:73. Holotype female; Libya: Cyrenaica, Benghazi (LUZERN). (*succincta-leachii* group).

*bequaerti* Bohart. Nearctic: e USA, ne Mexico.

*bequaerti* Bohart 1962:366. Holotype male; USA: Texas, Dallas (CAMBRIDGE). (*smaragdula* group).\*

*bergi* Semenov. Palaearctic: sw USSR.

*bergi* Semenov 1967:177. Holotype male; USSR: Moldavia, Tamail (LENINGRAD). (*ignita* group).\*

*berlandi* Linsenmaier. Palaearctic: France, Spain, North Africa.

*berlandi* Linsenmaier 1959a:139. Holotype male; France: Ver (LUZERN). (*rufitarsis* group).

*demissa* Linsenmaier 1959a:139. (*berlandi* ssp.). Holotype male; Morocco: Mendia (LUZERN).

*bernardi* (Buysson). Oriental: Vietnam.

*bernardi* (Buysson) 1909:209. (*Tetrachrysis*). Syntype females; Viet Nam: Tonkin (PARIS).\*

*beryllina* Gmelin. Palaearctic: Europe.

*beryllina* Gmelin 1790:2747. Type ?; Europe (destroyed). Unknown species.

*bhavanae* Bingham. Oriental: Burma, Malaysia, Philippines.

*bhavanae* Bingham 1903:472. Lectotype female (desig. Bohart herein); Burma: Tenasserim (BUDAPEST). (*ignita* group).\*

*bhoutanensis* (Buysson). Oriental: Philippines, Indonesia.

*bhoutanensis* (Buysson) 1909:212. (*Hexachrysis*). Holotype female; Philippines: Bhutan (PARIS). (*smaragdula* group).\*

*bianchii* Semenov. Palaearctic: Turkey.

*bianchii* Semenov 1892c:90. Lectotype male (desig. Bohart herein); Turkey: Kope-Dagh, Tsuli (LENINGRAD). (*ignita* group).\*

*bicolor* Lepelletier. Palaearctic: Europe, Morocco.

*bicolor* Lepelletier 1806:127. Lectotype male (desig. Morgan 1984); France: Paris (PARIS). (*succincta* s.s. group).\*

*variegata* Curtis 1824:5. Type ?; England: Exeter (lost ?). N. synonymy.

*illigeri* Wesmael 1839:176. Syntypes; Belgium (BRUSSELS ?).

*aeruginosa* Dahlbom 1854:267. Holotype female; Austria: Prussia (BERLIN).

*bidentata* Linnaeus. Palaearctic: Europe.

*bidentata* Linnaeus 1767:947. Type ?; Sweden (Mus. ?). (*viridula* group).

*iberica* Linsenmaier 1959a:131. (*bidentata* ssp.). Holotype female; Portugal: Soria (LUZERN).

*prominea* Linsenmaier 1959a:131. (*bidentata* ssp.). Holotype female; Switzerland: Wallis (LUZERN).

- vareana* Linsenmaier 1959a:131. (*bidentata* ssp.). Holotype female; France: Var (LUZERN).
- bihamata* Spinola. Palaearctic: North Africa, Middle East.
- bihamata* Spinola 1838:450. Type ?; Egypt (TURIN ?). (*bihamata* group).
- prasina* Klug 1845:Table 45 Fig. 10. Syntype males; Ethiopia (BERLIN).\*
- bidens* Mocsáry 1911b:474. Holotype male; Bolivia: Santa Cruz (in error ?) (BUDAPEST).\*
- flagrans* Balthasar 1953:236. (*bihamata prasina* var.). Holotype male; Jordan: Yarkon Esser Torchanot (PRAGUE). (Invalid quadrimomial).
- birecikensis* Linsenmaier. Palaearctic: Turkey.
- birecikensis* Linsenmaier 1968:132. Holotype female; Turkey (LUZERN). (*millenaris* group).
- bipartita* Smith. Australian: Australia.
- bipartita* Smith 1874b:462. Lectotype female (desig. Bohart herein); Australia (LONDON). (*smaragdula* group).\*
- bisexcisa* Mocsáry. Afrotropical: South Africa.
- bisexcisa* Mocsáry 1913a:36. Holotype female (not male); South Africa ('Africa merid.') (BUDAPEST). (*wahlbergi* group).\*
- biskrae* Bohart. Palaearctic: Algeria.
- naïla* Buysson 1900:151. Holotype female; Algeria: Biskra (PARIS ?). Nec Mocsáry 1890.
- biskrae* Bohart. N. repl. name for *naïla* Buysson 1900.
- blanchardi* Lucas. Palaearctic: North Africa, Spain.
- blanchardi* Lucas 1849:308. Holotype male; Algeria (PARIS). (*maculicornis* group).\*
- superba* Tournier 1879:95. Syntype male, female; Geneva: Peney (GENEVA). (wrong locality ?). Nec Cresson 1865a.
- helvetica* Mocsáry 1887a:16. Repl. name for *superba* Tournier 1879.
- abbreviaticornis* Buysson (In André) 1895:479. Syntype males; Egypt, s. Spain (Mus. ?).
- fertoni* Buysson (In André) 1895:599. Syntype females; Algeria, Morocco, Crete (Mus. ?).
- rubescens* Buysson 1908a:59. (*blanchardi* var.). Lectotype male (desig. Bohart herein); Egypt (PARIS). Nec Radoszkowski 1880.\*
- blandula* Mocsáry. Afrotropical: South Africa.
- blandula* Mocsáry 1902b:556. Holotype male; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM). (*cerastes* group).\*
- bleusei* Buysson. Palaearctic: North Africa.
- bleusei* Buysson 1898a:140. Holotype male; Algeria (PARIS). (*rufitarsis* group).\*
- bovei* Buysson. Palaearctic: Algeria.
- bovei* Buysson 1898b:524. Holotype male; Algeria (PARIS). (*elegans* group).\*
- brachyceras* (Bischoff). Oriental: Indonesia.
- brachyceras* (Bischoff) 1910:474. (*Tetrachrysis*). Holotype female; Indonesia: Molucca Isls.



('O. Malacca'), Kelanton (BERLIN). (*antennata* group).\*

*brachypyga* Ducke. Neotropical: Brazil, Peru.

*brachypyga* Ducke 1911:100. Lectotype male (desig. Bohart herein); Brazil: Pará (BELEM). (*intricata* group).\*

*braini* (Brauns). Afrotropical: South Africa.

*braini* (Brauns) 1928:392. (*Chrysidium*). Holotype female; South Africa: Cape Prov., Peninsula (PRETORIA-TM). (*rufitarsis* group).\*

*branicki* Radoszkowski. Palaearctic: Egypt.

*branicki* Radoszkowski 1876a:107. Holotype; Egypt (KRAKOW ?). (*bihamata* group).

*brasiliensis* Brullé. Neotropical: Costa Rica to Argentina.

*brasiliensis* Brullé 1846:35. Holotype female; Brazil (PARIS). (*ignita* group).\*

*reichi* Dahlbom 1854:218. Holotype female; 'Cape of Good Hope' (locality in error, prob. South American) (TURIN). Nec Spinola 1838. N. synonymy.\*

*chlorata* Mocsáry 1889:397. Lectotype female (desig. Bohart 1986b); Brazil (BUDAPEST).\*

*costaricana* Mocsáry 1912b:567. Lectotype female (desig. Bohart 1986b); Costa Rica (BUDAPEST). N. synonymy.\*

*braunsiana* Mocsáry. Afrotropical: South Africa.

*braunsiana* Mocsáry 1902b:562. Holotype female; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM). (*splendidula-senegalensis* group).\*

*breviceps* Mocsáry. Palaearctic: Ethiopia.

*breviceps* Mocsáry 1914:23. Holotype female; Ethiopia: Eritrea, Keren (BUDAPEST). (*comparata* group).\*

*brevicollis* Linsenmaier. Palaearctic: Canary Isls.

*brevicollis* Linsenmaier 1987:152. Holotype female; Canary Isls.: Lanzarote (LUZERN). Nec Mocsáry 1899.

*breviradialis* Linsenmaier. Palaearctic: Greece, Middle East.

*breviradialis* Linsenmaier 1968:100. Holotype male; Greece: Arta (LUZERN). (*ignita* group).

*brevitarsis* Thomson. Palaearctic: n Europe.

*brevitarsis* Thomson 1870:107. Type ?; Sweden (Mus. ?). (*ignita* group).

*brooksi* Kimsey. Nearctic: s Arizona.

*brooksi* Kimsey 1982:139. Holotype male; USA: Arizona, Cochise Co., 28 mi n Douglas (DAVIS). (*smaragdula* group).\*

*brothersi* Bohart. Afrotropical: South Africa.

*brothersi* Bohart 1988d:278. Holotype male; South Africa: Cape Prov., 30 km se Hoedspruit (GRAHAMSTOWN). (*zuluana* group).\*

*buda* Bohart. Palaearctic: China.

- buddhae* Semenov 1967:179. Holotype female; China: Hansiu Prov. (LENINGRAD). Nec Mocsáry 1913a.\*
- buda* Bohart. N. repl. name for *buddhae* Semenov 1967. (*ignita* group).
- buddhae* Mocsáry. Oriental: Taiwan, Borneo, s India.
- buddhae* Mocsáry 1913a:25. Lectotype male (desig. Bohart 1986b:); Taiwan: Takao (BUDAPEST). (*smaragdula* group).\*
- buechneri* Semenov. Palaearctic: w USSR.
- buechneri* Semenov 1892a:83. Holotype female (not male); Kazakh SSR: Nukus, Amu-Daria (LENINGRAD). (*graelsii* group).\*
- aurorea* Semenov 1967:167. (*remota* var.). Holotype female; Ukrainian SSR: Yelisavetpol (LENINGRAD).\*
- burorum* Mocsáry. Afrotropical: South Africa.
- burorum* Mocsáry 1902b:559. Lectotype male (desig. Bohart herein); South Africa: Orange Free State, Bothaville (PRETORIA-TM). (*zuluana* group).\*
- buxtoni* Morice. Palaearctic: Iraq.
- buxtoni* Morice 1921:202. Holotype male; Iraq (Mesopotamia): Amara (OXFORD). (*pulchella* group).\*
- bytinskii* Linsenmaier. Palaearctic: Jordan, Greece.
- bytinskii* Linsenmaier 1959a:126. Holotype female; 'Palestine': Kirji Huawin (LUZERN). (*viridissima* group).
- kremastiana* Linsenmaier 1959a:148. Holotype male; Greece: Rhodes Isl., Kremasti (LUZERN).
- caeruleiventris* Abeille. Palaearctic: s Europe to s USSR.
- caeruleiventris* Abeille 1878:5. Holotype female; France (PARIS). (*caeruleiventris* group).\*
- slovaca* Hoffer 1937b:66. (*dichroa* var.). Holotype female; Czechoslovakia (PRAGUE).
- glycera* Semenov 1967:154. Holotype male; Georgian SSR: Lagodechi (LENINGRAD).\*
- odessa* Linsenmaier 1987:150. (*caeruleiventris* ssp.). Holotype male; Turkey: Urfa (LUZERN).
- caffra* Mocsáry. Afrotropical: South Africa.
- caffra* Mocsáry 1889:214. Holotype female; South Africa: Natal Prov., 'Caffraria' (VIENNA).\*
- callista* Buysson. Afrotropical: South Africa.
- callista* Buysson 1891:42. Holotype male; South Africa: Cape Prov. ('Le Cap') (PARIS).\*
- callosella* Bohart. Nearctic: sw USA, n Mexico.
- callosella* Bohart 1982:99. Holotype male; USA: California, Inyo Co., Antelope Springs (DAVIS). (*antennalis* group).\*
- calpensis* Buysson. Palaearctic: Europe (Gibraltar).
- calpensis* Buysson (In André) 1896:720. Holotype male; UK: Gibraltar Isl. (PARIS). (*viridula* group).\*
- calypso* Semenov and Nikol'skaya. Palaearctic: s USSR.

*calypso* Semenov and Nikol'skaya 1954:126. Holotype male; Tadzhik SSR: Kondara (LENINGRAD). (*varidens-gracillima* group).\*

*campanai* Buysson. Afrotropical: widespread

*campanai* Buysson 1898b:527. Holotype male; Angola: Huilla (PARIS). (*comparata-gibba* group).\*

*pauperata* Mocsáry 1908b:519. Lectotype male (desig. Bohart 1986b:); South Africa: Transvaal Prov., Lichtenburg (BUDAPEST). N. synonymy.\*

*kerenensis* Mocsáry 1912a:387. Lectotype male (desig. Bohart 1986b:); Ethiopia: Eritrea, Keren (BUDAPEST). N. synonymy.\*

*canaliculata* (Brullé). Afrotropical: Senegal, Gabon, Congo.

*canaliculata* (Brullé) 1846:20. (Pyria). Holotype female; Senegal (TURIN). (*smaragdula* group).

*simillima* (Gribodo) 1879:326. (Pyria). Holotype; 'Affrica orientale' (GENOA). N. synonymy.\*

*smithii* Gribodo 1879:326. Holotype female; 'Affrica orientale' (GENOA). N. synonymy.\*

*gabonensis* Mocsáry 1889:584. Holotype female; Gabon (KRAKOW ?). N. synonymy.

*canaria* Linsenmaier. Palaearctic: Canary Isls.

*canaria* Linsenmaier 1959a:117. Holotype female; Spain: Canary Isl., Tenerife (LEIDEN). (*succincta* s.s. group).

*capana* Bohart. Afrotropical: South Africa.

*capana* Bohart 1988d:278. Holotype female; South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*exsecata* group).\*

*capensis* Mocsáry. Afrotropical: South Africa.

*carinata* Dahlbom 1854:167. Holotype male ?; South Africa: Cape Prov. (Mus. ?). Nec Bloch 1799. N. synonymy.

*capensis* Mocsáry 1887a:14. Repl. name for *carinata* Dahlbom 1854. (*oxygona* group).

*namaquensis* Mocsáry 1914:42. Holotype male; South Africa: Natal Prov. ('Caffraria') (BUDAPEST). N. synonymy.\*

*capicola* Bohart. Afrotropical: South Africa.

*capicola* Bohart 1988d:279. Holotype male; South Africa: Cape Prov., Kirstenbosch (GAINESVILLE-AEI). (*splendidula-senegalensis* group).\*

*capitalis* Dahlbom. Afrotropical: widespread.

*capitalis* Dahlbom 1854:100. Holotype male; South Africa: Cape Prov. (COPENHAGEN). (*capitalis* group).\*

*brevigena* Mocsáry 1902b:542. Holotype female; South Africa: Orange Free State, Bothaville (PRETORIA-TM). N. synonymy.\*

*aglaja* Mocsáry 1911b:465. Holotype female; Tanzania: Shirati (BUDAPEST). N. synonymy.\*

*kovacsii* Mocsáry 1914:15. Holotype female; Ethiopia: Harrar (BUDAPEST). N. synonymy.\*

*capito* Semenov. Palaearctic: Iran.

*capito* Semenov 1967:159. Holotype male; Iran: Arysha (LENINGRAD).\*

*carinulata* Mocsáry. Neotropical: Brazil, Paraguay, Argentina.

*carinulata* Mocsáry 1889:402. Holotype female; Brazil: Piauhi (BUDAPEST). (*intricans* group).\*

*carnifex* Mocsáry. Palaearctic: China.

*carnifex* Mocsáry 1889:517. Holotype male; China: Ta-tschiansy (BUDAPEST). (*ignita* group).\*

*caroli* Buysson. Palaearctic: Tunisia.

*caroli* Buysson 1907:108. Holotype female; Tunisia: Tunis (PARIS). (*smaragdula* group).\*

*caspiensis* Linsenmaier. Palaearctic: w USSR, e Austria.

*caspiensis* Linsenmaier 1959a:113. (*helleni* ssp.). Holotype female; Russian SFSR: Sarepta (LUZERN). (*succincta* s.s. group).

*cassandra* Semenov. Palaearctic: Iran.

*cassandra* Semenov 1967:149. Holotype male; Iran: Mekran (LENINGRAD).\*

*cassiope* Mocsáry. Afrotropical: South Africa.

*cassiope* Mocsáry 1912a:403. Holotype female; South Africa: Transvaal Prov., Johannesburg (BUDAPEST). (*ignita* group).\*

*castillana* Buysson. Palaearctic: Spain.

*castillana* Buysson (In André) 1894:374. (*angustifrons* var.). Spain (Mus. ?). (*elegans* group).

*austeramediat*a Linsenmaier 1987:151. (*castillana* ssp.). Holotype female; Turkey: Mut (LUZERN).

*catagrapha* Buysson. Afrotropical: South Africa, Basutoland, Zimbabwe.

*catagrapha* Buysson 1891:43. Holotype male; South Africa: Cape Prov. ('Le Cap') (PARIS). (*oxygona* group).\*

*kloofensis* (Cameron) 1906b:414. (*Tetrachrysis*). Holotype male; South Africa: Cape Prov. (LONDON). N. synonymy.\*

*aurcomaculata* (Bischoff) 1910:447. (*Pseudotetrachrysis*). Holotype male; South Africa: Cape Prov., East London (BERLIN). Nec Dahlbom 1854. N. synonymy.\*

*caudex* Linsenmaier. Palaearctic: Tunisia.

*caudex* Linsenmaier 1968:76. Holotype female; Tunisia (LUZERN). (*aestiva* group).

*cavaleriei* (Buysson). Palaearctic: China, e USSR.

*cavaleriei* (Buysson) 1908c:211. (*Tetrachrysis*). Holotype female; China (PARIS). (*succincta* s.s. group).\*

*dauriana* Linsenmaier 1959a:112. (*cavaleriei* ssp.). Holotype female; Russian SFSR: Daurya (LUZERN).



*ceciliae* Buysson. Oriental: Java, Philippines, Taiwan, Malaysia, Laos.

*ceciliae* Buysson 1904:259. Holotype female; Java: Malang (PARIS). (*ceciliae* group).\*

*philippinensis* (Bischoff) 1910:452. (*Holochrysis*). Holotype female; Philippines: Luzon (BERLIN). N. synonymy.\*

*insulicola* (Mocsáry) 1913b:614. (*Chrysidea*). Holotype female; Taiwan: Takao (BUDAPEST). N. synonymy.\*

*cedarsensis* Linsenmaier. Palaearctic: Lebanon.

*cedarsensis* Linsenmaier 1968:114. Holotype female; Lebanon (LUZERN). (*cerastes* group).

*cembricola* Krombein. Nearctic: USA, Canada.

*cembricola* Krombein 1958b:53. Holotype female; USA: West Virginia, Lost River State Park (WASHINGTON). (*ignita* group).\*

*cephalotes* Semenov. Palaearctic: s USSR.

*cephalotes* Semenov 1967:159. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD). (*cuprata* group).\*

*cerastes* Abeille. Palaearctic: s Europe.

*cerastes* Abeille 1877:68. Syntypes; France: Marseille (PARIS). (*cerastes* group).\*

*igniventris* Abeille 1877:67. Syntype females; France (PARIS ?).

*corfouiana* Linsenmaier 1959a:174. (*cerastes* ssp.). Holotype male; Greece: Corfu Isl. (LUZERN).

*pseudocerastes* Linsenmaier 1959a:175. (*ambigua* ssp.). Holotype female; Greece: Macedonia (LUZERN).

*cessata* Buysson. Nearctic: USA, Canada.

*cessata* Buysson 1891:36. Lectotype female (desig. Bohart herein); USA: 'Nat. Bridge, Virginia' (PARIS). (*ignita* group).\*

*chalcopyga* Mocsáry 1914:48. Lectotype female (desig. Bohart 1966b:); USA: 'Colorado' (BUDAPEST).\*

*ceylonica* Mocsáry. Oriental: Sri Lanka.

*ceylonica* Mocsáry 1913a:9. Holotype female; Sri Lanka: Pankulam (BUDAPEST). (*smaragdula* group).\*

*chakouri* Buysson. Palaearctic: Egypt.

*chakouri* Buysson 1908a:43. Lectotype male (desig. Bohart herein); Egypt: El Maragha ('El Marg.') (PARIS).\*

*chalcea* Móczár. Palaearctic: Yugoslavia, Rumania.

*chalcea* Móczár 1965:176. Holotype female; Yugoslavia: Zenica (BUDAPEST). (*ignita* group).\*

*chalcogaster* Mocsáry. Afrotropical: South Africa.

*chalcogaster* Mocsáry 1904:408. Lectotype female (desig. Bohart herein); South Africa: Cape

Prov., Willowmore (BUDAPEST). (*succincta* group).\*

*chalcophana* Mocsáry. Palaearctic: s USSR.

*chalcophana* Mocsáry 1889:213. Holotype male; USSR: 'Caucasus' (KRAKOW ?).

*charon* Mocsáry. Palaearctic: Algeria.

*charon* Mocsáry 1889:495. Holotype female; Algeria (BERLIN). (*rufitarsis* group).\*

*chavanae* Nurse. Palaearctic: Pakistan.

*chavanae* Nurse 1902:308. Holotype female; Pakistan: Quetta (LONDON). (*succincta* s.s. group).\*

*chinensis* Mocsáry. Palaearctic: China.

*chinensis* Mocsáry 1912b:589. Holotype female; China: Shanghai (BUDAPEST). (*ignita* group).\*

*chlorochrysa* Mocsáry. Palaearctic: Iran.

*chlorochrysa* Mocsáry 1883:23. Syntype male, female; Iran (KRAKOW ?).

*chlorosoma* Dahlbom. Oriental: Indonesia, Viet Nam, Java.

*chlorosoma* Dahlbom 1854:210. Holotype female; Indonesia: Java (COPENHAGEN). (*ignita* group).\*

*lara* Mocsáry 1912b:559. Holotype female; Indonesia: Java (BUDAPEST).\*

*annamita* Mocsáry 1912b:558. Holotype male; Viet Nam: Annam (BUDAPEST). N. synonymy.\*

*chlorospila* Klug. Palaearctic: North Africa, Sicily, Middle East.

*chlorospila* Klug 1845:Table 45 Fig. 3. Holotype female; Ethiopia (BERLIN). (*taczanovskii* group).\*

*octavii* Buysson (in André) 1895:476. Syntype male, female; Egypt, Sicily (Mus. ?).

*pleuridentata* (Bischoff) 1910:475. (*Tetrachrysis*). Holotype female; Peru (in error ?) (BERLIN).\*

*auromaculata* Mocsáry 1914:29. Holotype female; Mali (BUDAPEST). N. synonymy.\*

*griffinii* Mantero 1916:32. Unnec. repl. name for *auromaculata* Mocsáry 1914. Nec *aureomaculata* Dahlbom 1854.

*chosenensis* Tsuneki. Palaearctic: Korea, se USSR.

*chosenensis* Tsuneki 1950:71. (*nitidula* ssp.). Holotype female; Korea: Keijo (TSUKUBA). (*ignita* group).

*clariventris* Tsuneki 1953b:26. (*chosensis* f.). Syntype male, female; Korea (Mus. ?).Invalid.

*chrysochlora* Mocsáry. Palaearctic: s USSR, Iran, Lebanon, China.

*chrysochlora* Mocsáry 1889:515. Lectotype female (desig. Bohart herein); Uzbek SSR: Tashkent (BUDAPEST). (*ignita* group).\*

*viridans* Radoszkowski 1891:192. Holotype female; Turkmen SSR: Ashkabad (KRAKOW).\*

*samarkandensis* (Bischoff) 1910:463. (*Tetrachrysis*). Holotype female; Uzbek SSR: Samarkand (BERLIN).\*

*chrysophora* Semenov. Palaearctic: Iran.

*chrysophora* Semenov 1892c:81. Syntype males; Iran (LENINGRAD ?).

*chrysoprasina* Förster. Palaearctic: s Europe, w Asia.

*chrysoprasina* Förster 1853:321. Holotype female; s Europe (BERLIN). (*comparata-gibba* group).

*rutilans* Dahlbom 1854:260. Syntype males, females; Portugal, France, Turkey: Constantinople, Italy (BERLIN). Nec Olivier 1790.

*kerteszi* (Trautmann) 1926a:11. (*Tetrachrysis chrysoprasina* var.). Syntypes; Cyprus, Spain, Montarco (BERLIN). Nec Mocsáry 1912a:.

*chrysorrhousa* Gmelin. Palaearctic: Europe.

*chrysorrhousa* Gmelin 1790:2747. Type ?; Europe (destroyed). Unknown species.

*chrysoscutella* Linsenmaier. Palaearctic: Portugal, Spain, s France.

*chrysoscutella* Linsenmaier 1959a:113. Holotype female; Portugal: Soria (LUZERN). (*succincta* s.s. group).\*\*

*chrysoviolacea* Linsenmaier. Palaearctic: Canary Isls.

*chrysoviolacea* Linsenmaier 1968:51. Holotype female; Spain: Canary Isl. (LONDON). (*varidens-gracillima* group).\*

*cincta* Brullé. Afrotropical: South Africa, Zaire, Kenya.

*cincta* Brullé 1846:39. Holotype female; South Africa: Cape Prov. (PARIS). (*ignita* group).\*

*blanda* Mocsáry 1902b:554. Holotype female; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*

*lydenburgensis* (Bischoff) 1910:465. (*Tetrachrysis*). Lectotype female (desig. Bohart herein); South Africa: Transvaal, Lydenburg (BERLIN). N. synonymy.\*

*kirbyana* Mocsáry 1912a:402. Lectotype female (desig. Bohart 1966b); South Africa: Transvaal Prov., Patschafstrom (BUDAPEST). N. synonymy.\*

*cingulicornis* Förster. Palaearctic: s Europe, Italy to Lebanon, s USSR.

*cingulicornis* Förster 1853:313. Holotype male; Hungary ('Ungarn') (BERLIN). (*viridula* group).

*pseudopyrrhina* Linsenmaier 1959a:131. (*cingulicornis* ssp.). Holotype male; Russian SFSR (LUZERN).

*viennensis* Linsenmaier 1959a:131. (*cingulicornis* ssp.). Holotype female; Austria (LUZERN).

*dalmatina* Linsenmaier 1959b:238. (*cingulicornis* ssp.). Holotype female; Yugoslavia: Dalmatia, Krk Is. (LUZERN).

*libanonensis* Linsenmaier 1968:81. (*cingulicornis* ssp.). Holotype female; Lebanon (LUZERN).

*circassica* Mocsáry. Palaearctic: sw USSR.

*circassica* Mocsáry 1893:222. Holotype female; USSR: Caucasus (VIENNA). (*succincta* s.s. group).

*circe* Mocsáry. Palaearctic: sw USSR.

*circe* Mocsáry 1889:230. Syntype females; USSR: 'Caucasus' (KRAKOW ?).

*clara* Cresson. Nearctic: w USA (South Dakota to Idaho).

*clara* Cresson 1865b:313. Holotype female; USA: Colorado ('Col.'). (PHILADELPHIA). (*smaragdula* group).\*

*clarissima* (Bischoff). Palaearctic ?

*clarissima* (Bischoff) 1910:453. (*Holobrysis*). Holotype male (not female); 'patrie ignota' (BERLIN). (*viridula* group).\*

*clivosa* Linsenmaier. Palaearctic: Spain.

*clivosa* Linsenmaier 1959a:104. Holotype male; Spain: Soria (LUZERN). (*pulchella* group).

*cloe* Semenov. Palaearctic: s USSR.

*cloe* Semenov 1967:157. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD). (*pulchella* group).\*

*coa* Invrea. Palaearctic: sw USSR, Greece.

*coa* Invrea 1939:108. Type ?; Greece: Coa Isl. (Mus. ?). (*succincta* s.s. group).

*coelestina* Klug. Palaearctic: Egypt.

*coelestina* Klug 1845:Table 45 Fig. 4. Type ?; Egypt (BERLIN). (*maculicornis* group).

*cobaerea* Linsenmaier. Palaearctic: Greece.

*cobaerea* Linsenmaier 1959a:110. Holotype female; Greece: Corfu Isl. (LUZERN). (*succincta* s.s. group).

*pseudogribodoi* Linsenmaier 1959b:237. (*cobaerea* ssp.). Holotype female; Italy: Sardinia (LUZERN).

*coloradica* Bohart. Nearctic: w USA.

*pulcherrima* Cresson 1865b:311. Holotype male; USA: Colorado (PHILADELPHIA). Nec Lepeletier 1806.\*

*coloradica* Bohart 1964:224. Repl. name for *pulcherrima* Cresson 1865b. (*comparata-coloradica* group).

*comitata* Linsenmaier. Palaearctic: Canary Isls.

*comitata* Linsenmaier 1968:73. Holotype male; Spain: Canary Isl.: Tenerife, Los Christianos (LONDON). (*succincta-leachii* group).\*

*communis* Walker. Palaearctic: Middle East.

*communis* Walker 1871:8. Syntype male, female; Egypt: Sinai (Mus. ?). Unknown species.

*comottii* Gribodo. Oriental: Indonesia, Sumatra, Java.

*insularis* Smith 1859:26. Holotype female; Indonesia: Celebes (OXFORD). Nec Guérin 1842.\*

*comottii* Gribodo 1884b:367. Repl. name for *insularis* Smith 1859. (*smaragdula* group).



*comparata* Lepeletier. Palaearctic: Europe, w Asia.

*comparata* Lepeletier 1806:127. Syntype males; France: Meudon (PARIS ?). (*comparata* s.s. group).

*miegii* Guérin 1842:148. Syntype females; Spain: Barcelona (GENOA).\*

*chevrieri* Mocsáry 1879b:10. Type ?; Hungary (Mus ?). Nec Abeille 1877.

*orientalis* Mocsáry 1889:480. (*chevrieri* var.). Lectotype male (desig. Móczár 1965); sw USSR: 'Caucasus' (BUDAPEST). Nec Guérin 1842.\*

*orientica* Linsenmaier 1959a:149. Repl. name for *comparata orientalis* Mocsáry 1889.

*comta* Förster. Palaearctic: s Europe, s USSR.

*comta* Förster 1853:314. Holotype male; Turkey (BERLIN). (*ignita* group).

*adulterina* Abeille 1878:4. Holotype female; France: Gavarnie (PARIS ?).

*uncifera* Abeille 1878:4. Lectotype male (desig. Bohart herein); France: Corsica (PARIS)\*

*concolor* Mocsáry. Palaearctic: s and e USSR, Turkey, Japan.

*concolor* Mocsáry 1893:222. Lectotype male (desig. Bohart 1986b:); USSR: 'Siberia or.' (BUDAPEST). (*varidens* s.s. group).\*

*naias* Semenov 1954a:129. Lectotype male (desig. Bohart herein); Uzbek SSR: Derbent (LENINGRAD). N. synonymy.\*

*schwarzi* Linsenmaier 1968:51. (*concolor* ssp.). Holotype female; Turkey (LUZERN).

*confinis* Mocsáry. Afrotropical: South Africa, Zimbabwe.

*confinis* Mocsáry 1912a:404. Lectotype female (desig. Bohart 1986b:); South Africa: Transvaal Prov., Shilouvane (BUDAPEST). (*maindroni* group).\*

*projecta* Edney 1954a:568. Lectotype male (desig. Bohart 1986b:); Zimbabwe: Kahmi (CAPE TOWN). N. synonymy.\*

*conica* Brullé. Neotropical: Central America, n South America, Nearctic: s USA, n Mexico.

*conica* Brullé 1846:32. Lectotype female (desig. Bohart herein); French Guiana ('Lile de Cayenne') (PARIS). (*intricans* group).\*

*peracuta* Aaron 1885:237. Lectotype female (desig. Cresson 1928); USA: Georgia (PHILADELPHIA).\*

*peregrina* Buysson 1887b:188. Holotype female; North America ('Amerique septentrionale') (PARIS).\*

*coniuncta* Linsenmaier. Palaearctic: Middle East.

*coniuncta* Linsenmaier 1959a:100. Holotype female; Jordan: Ejn Gedde (LUZERN). (*subsinuata* group).\*\*

*consanguinea* Mocsáry. Palaearctic: Sicily, North Africa.

*consanguinea* Mocsáry 1889:299. Syntype male, female; Sicily, Algeria (GENEVA). (*viridula* group).

*coriacea* Buysson. Palaearctic: Algeria.

*coriacea* Buysson 1900:137. Holotype female (damaged); Algeria: Teniet (PARIS). (*millenaris* group).\*

*corsica* Buysson. Palaearctic: Corsica, Balears.

*corsica* Buysson (In André) 1896:726. (*leachii* var.). Holotype female; France: Corsica, Bonifacio (Mus. ?). (*succincta-leachii* group).

*cortii* Linsenmaier. Palaearctic: sw Europe.

*cortii* Linsenmaier 1951:50. (*leachii* var.). Syntype male, female; Switzerland: Wallis (LUZERN). (*leachii* group).

*corusca* Valkeila. Palaearctic: Sweden.

*corusca* Valkeila 1971:84. Holotype female; Sweden (STOCKHOLM). (*ignita* group).

*costae* Mocsáry. Palaearctic: Ethiopia.

*costae* Mocsáry 1912a:388. Holotype female; Ethiopia: Eritrea (BUDAPEST). (*graelisii* group).\*

*crenula* Bohart. Afrotropical: South Africa.

*crenula* Bohart 1988d:280. Holotype male; South Africa: Transvaal Prov., Roodenplaatt (PRETORIA-NIC).\*

*crista* Bohart. Neotropical: Peru, Bolivia, Chile, Argentina.

*crista* Bohart 1985b:93. Holotype male; Peru: Lima Prov., Matucana (TUCUMAN). (*comparata-gibba* group).\*

*cristovallensis* Montrousier. Australian: Insula Key, New Guinea to Solomon Isls.

*cristovallensis* Montrousier 1864:249. Holotype; Solomon Isl.: San Cristobal (Mus. ?). (*smaragdula* group).

*advena* Mocsáry 1889:563. Holotype female; Papua New Guinea (VIENNA). N. synonymy.\*

*partita* Mocsáry 1899:492. Lectotype male (desig. Bohart 1986b:); Papua New Guinea (BUDAPEST). N. synonymy.\*

*novobritannica* Cameron 1901:234. Holotype female; New Britain (LONDON). N. synonymy.\*

*democratica* Cameron 1901:235. Holotype female; New Britain (lost ?). N. synonymy.

*acheron* Mocsáry 1913a:28. Lectotype female (desig. Bohart 1986b:); 'Insula Key, Asia Arch.' (BUDAPEST).\*

*croesus* Mocsáry. Afrotropical: South Africa.

*croesus* Mocsáry 1890:61. Holotype male; South Africa: Cape Prov. (CAPE TOWN ?).

*croci* (Buysson). Palaearctic: Algeria.

*croci* (Buysson) 1908c:208. (*Gonochrysis*). Holotype male; Algeria (PARIS). (*bihamata* group).\*

*crotrema* Bohart. Nearctic: sw USA, nw Mexico.

*crotrema* Bohart 1964:228. Holotype male; USA: New Mexico, Rodeo (DAVIS). (*propria* group).\*

*cuprata* Dahlbom. Palaearctic: s Europe, North Africa.

- cuprata* Dahlbom 1854:135. Holotype female; Italy: Sicily (BERLIN). (*cuprata* group).
- cupratoides* Bohart. Palaearctic: s Europe.
- splendens* (Trautmann) 1926a:8 (*Holochrysis cuprata* var.). Holotype male; Italy: Terni (BERLIN). Nec Dahlbom 1854.\*
- cupratoides* Bohart. N. repl. name for *splendens* Trautmann 1926a.
- cupreiventris* Bingham. Palaearctic: n India.
- cupreiventris* Bingham 1898:117. Holotype female; India: H. Pradesh State, Simla (LONDON). (*ignita* group).\*
- cuproprasina* Mocsáry. Palaearctic: Turkey.
- cuproprasina* Mocsáry 1913a:8. Holotype female; Turkey: Smyrna (BUDAPEST). (*smaragdula* group).\*
- curta* Buysson. Palaearctic: North Africa: Algeria, Tunisia.
- curta* Buysson (In André) 1896:724. Holotype male (no abdomen); Algeria (PARIS). (*milanaris* group).\*
- igneola* Buysson (In André) 1896:725. Holotype female; Algeria: Biskra (PARIS).\*
- curtisensis* (Linsenmaier). Australian: Australia (Queensland).
- curtisensis* (Linsenmaier) 1982:346. (*Hexachrysis*). Holotype female; Australia: Queensland, Rockhampton (LONDON). (*smaragdula* group).\*
- curvilineata* Edney. Afrotropical: South Africa, Zimbabwe.
- curvilineata* Edney 1954a:569. Holotype female; Zimbabwe: Bulawayo (CAPE TOWN). (*ignita* group).\*
- cyaneata* Mocsáry. Palaearctic: s USSR.
- cyaneata* Mocsáry 1909:4. Holotype male; Kazakh SSR: Syr-Daria, Perovsk (BUDAPEST). (*cerastes* group).\*
- cyanochlora* Mocsáry. Afrotropical: South Africa.
- malachitica* Smith 1858:128. Holotype female; South Africa: Cape Prov. (OXFORD). Nec Dahlbom 1854.\*
- cyanochlora* Mocsáry 1887a:15. Repl. name for *malachitica* Smith 1858. (*smaragdula* group).
- cylindrica* Eversmann. Palaearctic: se Europe, Syria, w USSR.
- cylindrica* Eversmann 1857:554. Type ?; Russian SFSR: 'Prov. Casanensis' (KRAKOW ?). (*viridula* group).
- daphnis* Mocsáry 1889:298. Holotype male; Italy: Sicily (KRAKOW ?).
- procerula* Linsenmaier 1951:61. (*cylindrica* var.). Syntypes; Corsica, Sicily, Cyprus etc. (LUZERN).
- milani* Balthasar 1953:4. (*viridula* var.). Type ?; Yugoslavia: Dalmatia (PRAGUE).
- syriensis* Linsenmaier 1959a:133. (*daphnis* ssp.). Holotype female; Syria: Homs (LUZERN).

*cylindrosoma* Buysson. Palaearctic: North Africa.

*cylindrosoma* Buysson 1890a:134. Holotype female; Algeria (PARIS). (*bihamata* group).\*

*daedala* Bohart. Nearctic: w USA, n Mexico.

*daedala* Bohart 1982:119. Holotype male; USA: California, Riverside Co., Coachella (DAVIS). (*oreadis* group).\*

*dahlbomiana* Linsenmaier. Palaearctic: Turkey.

*dahlbomiana* Linsenmaier 1968:114. Holotype male; Turkey (LUZERN). (*cerastes* group).

*dalmanni* Dahlbom. Afrotropical: South Africa, Basutoland.

*dalmanni* Dahlbom 1845:12. Holotype female; locality unknown (STOCKHOLM). (*capitalis* group).

*dalyana* (Cameron). Afrotropical: South Africa.

*dalyana* (Cameron) 1906b:413. (*Tetrachrysis*). Holotype female; South Africa: Cape Prov., Grahamstown (LONDON). (*oxygona* group).\*

*darii* Mocsáry. Palaearctic: Iran.

*darii* Mocsáry 1914:20. Holotype female; Iran: Escalera (LONDON).\*

*debeaumonti* Linsenmaier. Palaearctic: Morocco.

*debeaumonti* Linsenmaier 1987:154. Holotype female; Morocco: Tiznit (LUZERN). (*ehrenbergi* group).

*decendentata* Linsenmaier. Oriental: Borneo, Java.

*insperata* Mocsáry 1914:71. Holotype female; Borneo (LONDON). Nec Chevrier 1870.\*

*decendentata* Linsenmaier 1959a:166. Repl. name for *insperata* Mocsáry 1914. (*smaragdula* group).

*decipiens* Mocsáry. Afrotropical: South Africa, Zaire.

*decipiens* Mocsáry 1902b:545. Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*bihamata* group).\*

*decolora* Linsenmaier. Palaearctic: Middle East.

*decolora* Linsenmaier 1959a:141. Holotype male; Jordan: Ejn Geddi (LUZERN). (*bihamata* group).\*\*

*decora* Mocsáry. Palaearctic: s USSR.

*superba* Radoszkowski 1877:20. Lectotype male (desig. Bohart herein); Kazakh SSR: Jaxartes River (MOSCOW). Nec Cresson 1865a.\*

*decora* Mocsáry 1887a:16. Repl. name for *superba* Radoszkowski 1877. (*splendidula* s.s. group).

*asiatica* Mocsáry 1889:448. (*rutilans* var.). Syntype females; Iran; Uzbek SSR (Mus. ?). Nec Radoszkowski 1889.

*mesasiatica* Semenov 1912:194. (*rutilans* var.). Repl. name for *asiatica* Mocsáry 1889.



*decorata* Mocsáry. Palaearctic ?

*decorata* Mocsáry 1889:424. Holotype female; Africa? (VIENNA).

*delicatula* Dahlbom. Afrotropical: widespread.

*delicatula* Dahlbom 1854:227. Holotype female; South Africa: Natal Prov. (STOCKHOLM). (*delicatula* group).\*

*littoralis* Mocsáry 1889:360. Holotype male; South Africa: Cape Prov., Delagoa Bay (BERLIN).\*

*tellinii* Buysson 1904:262. Lectotype male (desig. Bohart herein); Ethiopia: Eritrea (GENOA). N. synonymy.\*

*cylindracea* Mocsáry 1904:406. Holotype female; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*

*tentans* Edney 1954a:575. Holotype female; Namibia: Kaoko Otavi (CAPE TOWN). N. synonymy.\*

*demavendae* Radoszkowski. Palaearctic: Iran.

*demavendae* Radoszkowski 1881a:v. Syntype male, female; Iran: Demavend (KRAKOW ?). (*smaragdula* group).

*dentaincisa* Linsenmaier. Palaearctic: Morocco.

*dentaincisa* Linsenmaier 1968:86. Holotype male; Morocco: Agadir (LUZERN). (*rufitarsis* group).

*dentifrontis* Linsenmaier. Australian: South Australia.

*dentifrontis* Linsenmaier 1982:338. Holotype female; Australia: South Australia, Rostrevor (LUZERN).

*dentipes* Radoszkowski. Palaearctic: s USSR, Iran, North Africa.

*dentipes* Radoszkowski 1877:15. Lectotype female (desig. Bohart herein); Uzbek SSR: Sarafschan (MOSCOW). (*taczanovskii* group).\*

*eversmanni* Mocsáry 1912a:407. Holotype male; USSR: 'Turkestan' (BUDAPEST).\*

*cyrenaicaensis* Linsenmaier 1968:116. (*dentipes* ssp.). Holotype female; Libya: Cyrenaica (LUZERN).\*\*

*iraniensis* Buysson 1900:150. Holotype female; Iran: Teheran (PARIS).\*

*isis* Semenov 1954a:128. (*eversmanni* ssp.). Holotype female; Tadzhik SSR: Iol (LENINGRAD).\*

*dentipleuralis* (Brauns). Afrotropical: South Africa.

*dentipleuralis* (Brauns) 1928:387. (*Hexachrysis*). Holotype male; South Africa: Cape Prov., van Rhynsdorp (PRETORIA-TM). (*splendens* group).\*

*deposita* Nurse. Palaearctic: Pakistan.

*deposita* Nurse 1904:21. Holotype female; Pakistan: Quetta (LONDON). (*elegans* group).\*

*derivata* Buysson. Nearctic: USA, Canada, widespread.

*derivata* Buysson 1891:38. Holotype male; Canada: Quebec (PARIS). (*pattoni* group).\*

*decepta* Rohwer 1909:91. Holotype female; USA: Colorado, Boulder (WASHINGTON).\*

*diabolica* Buysson. Afrotropical: South Africa.

*diabolica* Buysson 1900:145. Holotype female; South Africa: Natal (H. Martin Coll.).

*diacantha* Mocsáry. Palaearctic: Europe, s USSR.

*diacantha* Mocsáry 1889:318. Lectotype female (desig. Móczár 1965); USSR: 'Caucasus' (BUDAPEST). (*varidens-gracillima* group).\*

*franciscæ* Linsenmaier 1959a:89. (*diacantha* ssp.). Holotype male; France (LUZERN).

*diademata* Mocsáry. Oriental: Philippines.

*diademata* Mocsáry 1889:414. Holotype male; Philippines: Mindanao Isl. (KRAKOW ?). (*angolensis* group).

*diebli* Linsenmaier. Palaearctic: Middle East.

*diebli* Linsenmaier 1968:123. Holotype female; Saudi Arabia: El Riyadh (LUZERN). (*smaragdula* group).

*dira* Mocsáry. Afrotropical: widespread.

*dira* Mocsáry 1883:17. Holotype female; Guinea (BUDAPEST). (*comparata-gibba* group).\*

*guineensis* Mocsáry 1889:352. Holotype male; Guinea: Langenburg, 'Nyassa-See' (BERLIN).\*

*transvaalensis* Mocsáry 1908b:520. Lectotype male (desig. Bohart 1986b:); South Africa: Transvaal (BUDAPEST). N. synonymy.\*

*tetradontophora* (Bischoff) 1910:467. (*Tetrachrysis*). Holotype female; Guinea: N. Kolentangan (BERLIN). N. synonymy.\*

*benguella* Mocsáry 1912a:393. Holotype female; Angola: Benguela (BUDAPEST). N. synonymy.\*

*negusi* Mocsáry 1914:31. Holotype female; Ethiopia: Marako (BUDAPEST). N. synonymy.\*

*salisburyana* Mocsáry 1914:37. Lectotype female (not male) (desig. Bohart 1986b:); Zimbabwe: Salisbury (BUDAPEST). N. synonymy.\*

*disparilis* Cameron. Oriental: India, Sri Lanka.

*disparilis* Cameron 1897a:5. Holotype female; India: Barrackpore (OXFORD). (*splendidula-senegalensis* group).\*

*dissimilanda* Buysson. Oriental: India.

*dissimilanda* Buysson 1896:470. Holotype male; India: Bombay, Poona (PARIS). (*ceciliae* group).\*

*dissimilis* Dahlbom. Oriental: e India.

*dissimilis* Dahlbom 1854:202. Holotype female; India: Bengal (COPENHAGEN). (*elegans* group).

*distincta* Mocsáry. Palaearctic: s USSR, se Europe, Middle East, n India, North Africa.

*incerta* Radoszkowski 1880:145. (*analís* var.). Type ?; USSR: 'Caucasus' (KRAKOW ?). Nec Dahlbom 1854.

*distincta* Mocsáry 1887a:13. Repl. name for *analís incerta* Radoszkowski 1880 (*cerastes* group).

- thalhammeri* Mocsáry 1889:456. Lectotype female (desig. Móczár 1965); Hungary: Vrdnik (BUDAPEST).\*
- exigua* Mocsáry 1889:456. Holotype female; USSR: 'Turkestan' (KRAKOW ?).
- poecilochroa* Radoszkowski 1889:27. Holotype male; Algeria (KRAKOW ?).
- quettaensis* Nurse 1903b:41. Lectotype female (desig. Bohart herein); Pakistan: Quetta (LONDON).
- kabulica* Balthasar 1957:150. Holotype female; Afghanistan: Kabul (PRAGUE). N. synonymy.\*
- distinctissima* Dahlbom. Neotropical: Mexico to Argentina.
- distinctissima* Dahlbom 1854:211. Syntype male, female; South America (TURIN). (*intricans* group).
- distinguenda* Spinola. Palaearctic: Egypt.
- distinguenda* Spinola 1838:450. Holotype female; Egypt (TURIN ?).
- districta* Buysson. Afrotropical: Sierra Leone to South Africa.
- districta* Buysson 1904:270. Holotype female; Sierra Leone (PARIS). (*aureomaculata* group).\*
- khami* Edney 1954a:580. Lectotype female (desig. Bohart herein); Zimbabwe: Kami (CAPE TOWN). N. synonymy.\*
- dives* Lucas. Palaearctic: North Africa (Algeria, Morocco).
- dives* Lucas 1849:306. Type ?; Algeria (Mus. ?). (*pulchella* group).
- dolens* Semenov and Nikol'skaya. Palaearctic: s USSR.
- dolens* Semenov and Nikol'skaya 1954:120. Holotype male; Tadzhik SSR: Kvak (LENINGRAD). (*rufitarsis* group).\*
- dorsalis* Aaron. Nearctic: USA, Canada, widespread.
- dorsalis* Aaron 1885:234. Lectotype female (desig. Cresson 1928); USA: Montana (PHILADELPHIA). (*succincta* s.s. group).\*
- alfkenella* Buysson 1904:266. Holotype male; USA: California, Berkeley (PARIS).\*
- draco* Semenov. Nearctic: s USSR.
- draco* Semenov 1967:163. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). (*ignita* group).\*
- drewseni* Dahlbom. Afrotropical: South Africa.
- drewseni* Dahlbom 1854:273. Lectotype male (desig. Bohart herein); South Africa: Cape Prov. (COPENHAGEN). (*bihamata* group).\*
- propinqua* Edney 1952:442. Holotype female; South Africa: Cape Prov., Matjesfontein (LONDON). N. synonymy.\*
- nigrescens* Edney 1952:443. Holotype female; South Africa: Cape Prov., Matjesfontein (LONDON). N. synonymy.\*
- dubitata* Mocsáry. Palaearctic: Egypt.

- dubitata* Mocsáry 1889:498. Based on Dahlbom's description of *prasina* Klug 1854:184'; Egypt.
- dugesi* Buysson. Nearctic: USA, Canada, Mexico, widespread  
*dugesi* Buysson 1898b:532. Lectotype female (desig. Bohart 1982); Mexico (PARIS). (*dugesi* group).\*
- altivolans* Mocsáry 1914:53. Holotype male; Mexico: Guerrero, Omiltreme (LONDON).\*
- duplogermari* Linsenmaier. Palaearctic: France.  
*duplogermari* Linsenmaier 1987:148. Holotype female; France: Corsica, Vizzavona (LONDON).
- duplopilosa* Linsenmaier. Palaearctic: Tibet.  
*duplopilosa* Linsenmaier 1968:101. Holotype female; Tibet: Gyantse (LONDON). (*ignita* group).
- durbar* Mocsáry. Palaearctic: n India.  
*durbar* Mocsáry 1914:46. Holotype female; India: n Khasia Hills (LONDON). (*ignita* group).\*
- durga* Bingham. Oriental: Burma, China, Laos, Malaysia.  
*durga* Bingham 1903:487. Lectotype female (desig. Bohart herein); Burma: Mandalay (LONDON). (*smaragdula* group).
- dusmeti* Mercet. Palaearctic: Egypt.  
*dusmeti* Mercet 1904a:88. Holotype female; Egypt: Cairo (MADRID).
- dusmetina* Bohart. Palaearctic: se Europe, Portugal, Spain.  
*dusmeti* (Trautmann) 1926a:11. (*Hexachrysis pulchella* var.). Holotype female; Spain: Castile (BERLIN). Nec Mercet 1904a.\*  
*dusmetina* Bohart. N. repl. name for *dusmeti* Trautmann 1926a. (*pulchella* group).
- eatoni* Buysson. Palaearctic: s USSR.  
*eatoni* Buysson 1898a:141. Lectotype female (desig. Bohart herein); Egypt: Cairo (PARIS). (*pallidicornis* group).\*
- eborata* Semenov. Palaearctic: s USSR.  
*eborata* Semenov 1967:160. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD). (*varidens* group ?).\*
- echidna* Semenov. Palaearctic: s USSR.  
*echidna* Semenov 1967:163. Holotype female; Turkmen SSR: Ashkhabad (LENINGRAD).\*
- edneyi* Bohart. Afrotropical: South Africa.  
*mutata* Edney 1952:427. Lectotype male (desig. Bohart herein); South Africa: Cape Prov., Willowmore (PRETORIA-TM). Nec Mocsáry 1882.\*  
*edneyi* Bohart. N. Repl. name for *mutata* Edney 1952.



*edwardsi* Buysson. Afrotropical: South Africa.

*edwardsi* Buysson 1898b:558. Holotype female; South Africa: Natal ('Cafrerie') (PARIS). (*wahlbergi* group).\*

*ehrenbergi* (Dahlbom). Palaearctic: North Africa.

*ehrenbergi* (Dahlbom) 1845:8. (*Platycelia*). Holotype; Egypt (STOCKHOLM). (*ehrenbergi* group).

*vogti* (Trautmann) 1926a:7. (*Cephalochrysis ehrenbergi* var.). Holotype male; Libya: Tripoli (BERLIN).\*

*chrysodorsa* Linsenmaier 1968:106. (*ehrenbergi* ssp.). Holotype male; Algeria: Biskra (LUZERN).

*hylae* Linsenmaier 1968:106. (*ehrenbergi* ssp.). Holotype female; Egypt: Faioum (LUZERN).

*vinaria* Linsenmaier 1968:107. (*ehrenbergi* ssp.). Holotype female; Morocco: Agadir (LUZERN).

*electa* Walker. Palaearctic: Middle East.

*electa* Walker 1871:8. Holotype male; Arabia (Lost ?). Unknown species.

*elegans* Lepeletier. Palaearctic: s Europe, Middle East.

*elegans* Lepeletier 1806:128. Lectotype male (desig. Bohart herein); Greece: 'Moree' (PARIS). (*elegans* group).\*

*dorsata* Brullé 1833:376. Holotype female; Greece: 'Messene Valley' (Mus. ?)

*confluens* (Dahlbom) 1845:6. (*Chrysura*). Holotype male; Greece: Rhodes Isl. (STOCKHOLM).

*aureola* Förster 1853:319. Holotype male; s Europe (BERLIN ?).

*transcaspica* Mocsáry 1889:306. (*elegans* var.). Holotype female; USSR: 'Transcaspia' (KRAKOW ?).

*nostra* Radoszkowski 1891:184. (*transcaspica* var.). Type ?; USSR: 'Gedzen' (KRAKOW ?).

*smaragdula* (Trautmann) 1926a:8. (*Gonochrysis elegans* var.). Lectotype male (desig. Bohart herein); Greece: Rhodes Isl. (BERLIN). Nec Fabricius 1775.\*

*salome* Balthasar 1953:220. Holotype male; Israel: Jerusalem (PRAGUE).

*interrogata* Linsenmaier 1959a:137. Repl. name for *smaragdula* Trautmann 1926a:.

*azrouensis* Linsenmaier 1987:150. (*elegans* ssp.). Holotype female; Morocco: Azrou (LUZERN).

*elegantula* Spinola. Palaearctic: Egypt.

*elegantula* Spinola 1838:451. Holotype male; Egypt (TURIN ?). (*scutellaris-comparata* group).

*elizabethae* Bingham. Oriental: Burma.

*elizabethae* Bingham 1903:449. Holotype female; Burma: Tenasserim (LONDON). (*succincta* s.s. group).\*

*ellampia* Bohart. Palaearctic: s USSR.

*ellampoides* Semenov 1910:224. Holotype female; Turkmen SSR: Pereval (LENINGRAD). Nec DUCKE 1902b:98.\*

- ellampia* Bohart. N. repl. name for *ellampoides* Semenov 1910. (*rufitarsis* group).
- elvira* Balthasar. Palaearctic: Afghanistan.
- elvira* Balthasar 1957:151. Holotype female; Afghanistan: Badakschan Mts., Sarekanda (Klapperich coll.). (*taczanovskii* group).
- emarginatula* Spinola. Palaearctic: se Europe.
- emarginatula* Spinola 1808:239. Type ?; Italy (TURIN). (*emarginatula* group).
- crassimargo* Spinola 1843:127. Holotype female; Spain (TURIN ?).
- ephippium* Curtis. Palaearctic: England.
- ephippium* Curtis 1824:8. Type ?; England. Unknown species.
- equestris* Dahlbom. Palaearctic: Eurasia (mostly northern).
- equestris* Dahlbom 1854:307. Type ?; Europe ('Patrie ignota') (Mus. ?). (*smaragdula* group).
- equidens* Viereck. Nearctic: USA, widespread (mostly w of Rocky Mts.).
- equidens* Viereck 1906:193. Holotype female; USA: Kansas, Morton Co. (LAWRENCE). (*succincta* s.s. group).\*
- pilosa* (Bischoff). 1910:463. (*Tetrachrysis*). Holotype male; Mexico (BERLIN).\*
- nana* Mocsáry 1913a:33. Holotype male; USA: Texas, Fedor (BUDAPEST).\*
- eremophila* Mocsáry. Palaearctic: n Sudan.
- eremophila* Mocsáry 1914:45. Holotype female; Sudan: 'Nubian desert' (LONDON). (*comparata-scutellaris* group).\*
- erivanensis* Radoszkowski. Palaearctic: sw USSR.
- erivanensis* Radoszkowski 1880:146. Syntypes; USSR: Armenian SSR: Yerivan (KRAKOW ?). (*smaragdula* group).
- erythraeana* Mocsáry. Palaearctic: Ethiopia, Egypt.
- erythraeana* Mocsáry 1912a:390. Holotype female; Ethiopia: Eritrea, Adi-Ugri (BUDAPEST). (*cerastes* group).\*
- erythroceras* Mocsáry. Palaearctic: s USSR.
- erythroceras* Mocsáry 1909:6. Holotype male; Kazakh SSR: Syr-Daria (BUDAPEST). (*taczanovskii* group).\*
- escaleraei* Mercet. Palaearctic: Middle East.
- escaleraei* Mercet 1904a:87. Holotype female; Syria ('Siria'): Akbe (MADRID ?).
- escaleraei* (Buysson). Palaearctic: Morocco.
- escaleraei* (Buysson) 1911:408. (*Dichrysis*). Holotype female; Morocco (PARIS). (*succincta-leachii* group).\*
- espagnola* Linsenmaier. Palaearctic: Spain.
- espagnola* Linsenmaier 1968:90. (*anomala* ssp.). Holotype female; Spain: Castilia (LUZERN). (*bihamata* group).

*eumesodonta* Semenov and Nikol'skaya. Palaearctic: s USSR.

*eumesodonta* Semenov and Nikol'skaya 1954:131. Holotype male; Tadzhik SSR: Dzhirgatal (LENINGRAD). (*ehrenbergi* group).\*

*euterpe* Balthasar. Palaearctic: Middle East, Turkey.

*euterpe* Balthasar 1953:243. Holotype male; Jordan: Yarkon Esser Torchanot (PRAGUE). (*bihamata* group).

*wahrmanni* Linsenmaier 1957:169. Type ?; Turkey: Anatolia (LUZERN). N. synonymy.\*\*

*evea* Bohart. Afrotropical: Zaire.

*evea* Bohart 1988d:281. Holotype female; Zaire: Katanga, Lubumbashi (CAMBRIDGE). (*wahlbergi* group).\*

*excavata* Brullé. Neotropical: Panama to Argentina.

*excavata* Brullé 1846:33. Holotype male; Brazil (PARIS). (*intricans* group).\*

*diana* Mocsáry 1889:401. Holotype male; Brazil: Piauí (BUDAPEST).\*

*fraterna* Mocsáry 1889:399. Holotype male; Brazil: Blumenau (VIENNA). Nec Mocsáry 1889:322.\*

*binominata* Mocsáry 1889:628. Repl. name for *fraterna* Mocsáry 1889.

*roseni* Mocsáry 1912b:571. Holotype female; Colombia (MUNICH ?).

*pleuretica* Mocsáry 1912b:582. Lectotype male (desig. Bohart 1986b:); Argentina: Mendoza (BUDAPEST).\*

*excisa* Radoszkowski. Palaearctic: w Europe.

*excisa* Radoszkowski 1889:25. Male genitalia only; France (KRAKOW ?).

*excursa* Linsenmaier. Palaearctic: North Africa, Middle East.

*excursa* Linsenmaier 1959a:121. Holotype female; Tunisia (LUZERN). (*succincta-leachii* group).

*eximia* Mocsáry. Afrotropical: Senegal to South Africa.

*eximia* Mocsáry 1889:428. Holotype female; South Africa: Natal Prov. ('Caffraria') (VIENNA). (*splendidula-senegalensis* group).\*

*westwoodi* Mocsáry 1912b:585. Holotype female; South Africa: Orange Free State, Smithfield (BUDAPEST).\*

*exornata* Mocsáry. Afrotropical: South Africa.

*exornata* Mocsáry 1902b:565. Holotype female; South Africa: Orange Free State (PRETORIA-TM). (*exornata* group).\*

*exsecata* Mocsáry. Afrotropical: South Africa.

*exsecata* Mocsáry 1908b:509. Lectotype male (desig. Bohart 1986b:); South Africa: Willowmore (BUDAPEST). (*exsecata* group).\*

*exsulans* Dahlbom. Palaearctic: North Africa, s USSR.

*exsulans* Dahlbom 1854:247. Holotype male; Algeria (Mus. ?). (*ignita* group).

- asiatica* Linsenmaier 1951:82. (*exsulans* var.). Type ?; Uzbek SSR: Fergana (BUDAPEST). Nec Radoszkowski 1889.
- castigata* Linsenmaier 1959a:155. (*exsulans* ssp.). Repl. name for *asiatica* Linsenmaier 1951:82.
- extensa* Edney. Afrotropical: South Africa.
- extensa* Edney 1952:426. Holotype female; South Africa: Cape Prov., Camps Bay (LONDON). (*extensa* group).\*
- extersa* Buysson. Palaearctic: China.
- extersa* Buysson 1898a:137. Holotype female; China: Nyan-kin (PARIS). (*ignita* group).\*
- fabricii* Mocsáry. Neotropical: Surinam to Argentina.
- sexdentata* Fabricius 1798:258. Holotype female; French Guiana: Cayenne (COPENHAGEN). Nec Christ 1791.
- fabricii* Mocsáry 1882:46. Repl. name for *sexdentata* Fabricius 1798. (*smaragdula* group) \*
- dromeda* Buysson 1898b:541. Holotype female; South America ('America' ?) (PARIS ?).
- fabulosa* Semenov. Palaearctic: Iran.
- fabulosa* Semenov 1967:157. Holotype female; Iran: Chatly, Atrek river (LENINGRAD). (*ebrenbergi* group).\*
- facialis* Buysson. Palaearctic: Turkey, Middle East.
- facialis* Buysson 1887b:196. Holotype female; Israel: Tiberiade (PARIS). (*facialis* group).\*
- fasciata* Olivier. Palaearctic: Eurasia.
- fasciata* Olivier 1790:677. Type ?; s France (PARIS ?). (*smaragdula* group).
- violacea* Panzer 1806:103. Type ?; Germany (Mus. ?). Nec Schrank 1804.
- daphne* Smith 1874a:399. (*fasciata* var.). Holotype female; Japan: Hiogo (LONDON).\*
- zetterstedti* Dahlbom 1845:11. (*fasciata* var.). Syntype males; Sweden, Norway (Mus. ?).
- fax* Semenov. Palaearctic: s USSR.
- fax* Semenov 1903:399. Holotype female; Kirghiz SSR: Semiretshje (LENINGRAD). (*ignita* group).\*
- fervens* Mocsáry. Afrotropical: South Africa.
- fervens* Mocsáry 1902b:563. Holotype male; South Africa: Orange Free State, Reddersburg (PRETORIA-TM). (*rufitarsis* group).\*
- festina* Smith. Australian: Australia (widespread), New Guinea.
- festina* Smith 1874b:462. Holotype female; Australia: Western Australia, Perth (LONDON). (*smaragdula* group).\*
- dreuseni* Gribodo 1879:325. Holotype male; Australia (COPENHAGEN). Nec Dahlbom 1854. N. synonymy.\*
- scrobiculata* Mocsáry 1887a:15. Repl. name for *dreuseni* Gribodo 1879. N. synonymy.



*novaeuguineae* (Cameron) 1906a:49. (*Heptachrysis*). Holotype female; New Guinea: Manokwari (Mus. ?). N. synonymy.

*septemdentata* (Bischoff) 1910:492. (*Heptachrysis*). Holotype female; Australia: Western Australia, Kalgoorlie (BERLIN). N. synonymy.\*

*filiafacialis* Linsenmaier. Palaearctic: Middle East.

*athalia* Balthasar 1953:247. (*facialis* f.). Holotype female; Israel: Jerusalem (PRAGUE). Invalid name.

*filiafacialis* Linsenmaier 1959a:105. Repl. name for *athalia* Balthasar 1953. (*facialis* group).

*flagrans* Semenov. Palaearctic: w USSR.

*flagrans* Semenov 1967:160. Holotype female; USSR: 'Caucasus: Uzalty' (LENINGRAD). (*pulchella* group).\*

*flamaryi* Buysson. Palaearctic: Algeria.

*flamaryi* Buysson 1898a:136. Holotype male; Algeria: Ghardaia (PARIS). (*comparata* s.s. group).\*

*flamma* Semenov. Palaearctic: s USSR.

*flamma* Semenov 1954a:120. Holotype female; Tadzhik SSR: Peter the Great Range (LENINGRAD). (*pulchella* group).\*

*flexilateralis* Linsenmaier. Palaearctic: Iraq.

*flexilateralis* Linsenmaier 1968:103. Holotype female; Iraq: 'Mesopotamia' (LONDON). (*ignita* group).\*

*flexuosa* Mocsáry. Palaearctic: s USSR.

*flexuosa* Mocsáry 1912b:590. Holotype male; USSR: 'Caucasus' (BUDAPEST).\*

*florisomnis* Mocsáry. Neotropical: Brazil.

*florisomnis* Mocsáry 1912b:576. Holotype female; Brazil: Pará, Obidos (BUDAPEST). (*comparata-gibba* group).\*

*florissanticola* Rohwer. Nearctic: w USA to Alaska.

*florissanticola* Rohwer 1909:88. Holotype male; USA: Colorado, Florissant (WASHINGTON). (*comparata-coloradica* group).\*

*florissantensis* Bohart 1962:362, in error.

*foochowia* Linsenmaier. Oriental: se China.

*foochowia* Linsenmaier 1968:102. Holotype female; China: Foochow (LONDON). (*ignita* group).\*

*formosella* Mocsáry. Afrotropical: South Africa.

*formosella* Mocsáry 1908b:521. Lectotype male (desig. Bohart herein); South Africa: Transvaal, Lichtenburg (PRETORIA-TM). (*scutellaris* group).\*

*calosoma* Mocsáry 1912b:584. Holotype male; South Africa (BUDAPEST).\*

*fortuna* Semenov. Palaearctic: sw USSR.

*fortuna* Semenov 1967:164. Holotype male; Ukrainian SSR: Yelisavetpol (LENINGRAD). (*maculicornis* group).\*

*fossulata* Smith. Neotropical: Brazil to Venezuela (apparently distributed by commerce to e China, w Mexico, e South Africa, Australia).

*fossulata* Smith 1874b:459. Holotype female; China: Shanghai (LONDON). (*intricans* group).\*

*intrudens* Smith 1874b:458. Holotype female; Australia (LONDON). Nec Smith 1865.\*

*versuta* Mocsáry 1887a:15. Repl. name for *intrudens* Smith 1874b:.

*fouqueti* (Buysson). Palaearctic: Mongolia; Oriental: Viet Nam, Taiwan.

*fouqueti* (Buysson) 1909:210. (*Tetrachrysis*). Holotype female; Viet Nam: 'Tonkin' (PARIS ?). (*ignita* group).\*

*nitidularia* Mocsáry 1912a:411. Lectotype male (desig. Bohart 1986b:); Kazakh SSR: Wernyi, Narynkol (BUDAPEST). N. synonymy.\*

*csikiana* Mocsáry 1912a:406. Lectotype male (desig. Bohart 1986b:); Mongolia: Altai (BUDAPEST).\*

*faceta* Mocsáry 1912b:561. Holotype male; Taiwan: Takao (BUDAPEST). Nec Aaron 1885.\*

*facetana* Linsenmaier 1968:101. Repl. name for *faceta* Mocsáry 1912b:561.

*frankenbergeri* Balthasar. Palaearctic: Middle East.

*frankenbergeri* Balthasar 1953:248. Holotype male; Israel: Jerusalem (PRAGUE). (*graeli* group).\*\*

*friesei* Buysson. Palaearctic: Algeria.

*friesei* Buysson 1900:145. Lectotype female (desig. Bohart herein); Algeria: Biskra (PARIS). (*succincta* s.s. group).\*

*frontalis* Klug. Palaearctic: Egypt.

*frontalis* Klug 1845:Table 45 Fig. 9. Holotype male; Egypt (BERLIN). (*bihamata* group).\*

*fugacis* Bohart. Palaearctic: s USSR.

*fugax* Semenov 1967:170. Holotype male; Turkmen SSR: Pereval Station (LENINGRAD). Nec Abeille 1878.\*

*fugacis* Bohart. N. repl. name for *fugax* Semenov 1967. (*varidens* s.s. group).

*fugax* Abeille. Palaearctic: s Europe, North Africa.

*fugax* Abeille 1878:5. Type ?; France (PARIS ?). (*millenaris* group).

*fulgida* Linnaeus. Palaearctic: Eurasia.

*fulgida* Linnaeus 1761:415. Lectotype female (desig. Morgan 1984); Sweden: Uppsala (LONDON). (*ignita* group).\*

*ornatrix* Christ 1791:403. Holotype male (Lost ?).

*apricans* Gravenhorst 1807:271. Type ?; no locality (Mus. ?).

- stoudera* Jurine 1807:296. Holotype male; based on pl. 12, fig. 42.
- ocellata* Blanchard 1840:295. In error for *oculata* Lepeletier 1806.
- studerii* Labram and Imhof 1842:9. Incorrect emendation of *stoudera* Jurine 1807.
- cruenta* Mocsáry 1883:15. (*fulgida* var.). Type ?; USSR: 'Caucasus' (BUDAPEST ?).
- concolor* Mocsáry 1912b:586. (*fulgida* var.). Lectotype male (desig. Bohart 1986b); USSR: 'Turkestan' (BUDAPEST). Nec Mocsáry 1893.\*
- smaragdula* Hellen 1919:212. (*fulgida* ab.). Type ?; Finland. Invalid name.
- ignitoides* Marechal 1937:395. (*fulgida* var.). Syntype male, female; Belgium: 'Saint André Les Bruges' (Marechal coll. ?).
- aurolimbata* Móczár 1946:27. (*fulgida* var.). Lectotype male (desig. Móczár 1965); Hungary (BUDAPEST). Nec Mocsáry 1889.\*
- aequicolor* Linsenmaier 1968:101. Repl. name for *concolor* Mocsáry 1912b.
- fulgidaria* Tsuneki. Palaearctic: Korea, Japan.
- fulgidaria* Tsuneki 1952:32. Holotype female; Korea: Mt. Kaya (TSUKUBA). (*ignita* group).
- fulvicornis* Mocsáry. Palaearctic: Greece, Middle East, Iran, s USSR.
- fulvicornis* Mocsáry 1889:373. Holotype male; USSR: 'Turkestan' (KRAKOW ?). (*maculicornis* group).
- salambo* Balthasar 1953:281. Holotype female; Jordan: Wadi el Kelt (PRAGUE).
- graeciana* Linsenmaier 1968:111. (*fulvicornis* ssp.). Holotype female; Greece (LUZERN).
- galatea* Semenov. Palaearctic: s USSR.
- galatea* Semenov 1967:174. Holotype male; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD). (*amneris* group).\*
- galloisi* (Buysson). Palaearctic: Japan, se USSR.
- galloisi* (Buysson) 1908c:210. (*Tetrachrysis*). Lectotype male (desig. Bohart herein); Japan (PARIS). (*ignita* group).\*
- rubrifasciata* Tsuneki 1950:71. Holotype female; Japan: Nikko (TSUKUBA).
- geddiensis* Linsenmaier. Palaearctic: Middle East.
- geddiensis* Linsenmaier 1968:113. Holotype female; 'Palestine' (LUZERN). (*cerastes* group).\*\*
- genosa* Bohart. Afrotropical: South Africa.
- genosa* Bohart 1988d:281. Holotype female; South Africa: Transvaal Prov., Nylevley Nature Reserve (PRETORIA- NIC). (*delicatula* group).\*
- georgii* Semenov. Palaearctic: s USSR.
- georgii* Semenov 1954a:124. Lectotype male (desig. Bohart herein); Tadzhik SSR: Kondara (LENINGRAD). (*viridula* group).\*
- germari* Wesmael. Palaearctic: s Europe.
- nitidula* Germar 1817:260. Type ?; Yugoslavia: Fiume (Mus. ?). Nec Fabricius 1775.
- germari* Wesmael 1839:177. Holotype male; Europe (Mus. ?); based on *nitidula* Germar

1817 (*succincta* s.s. group).

*fulminans* Linsenmaier 1951:51. (*germari* var.). Syntypes; Switzerland: Wallis (LUZERN).\*\*

*intergermari* Linsenmaier 1959a:116. (*germari* ssp.). Holotype female; Lebanon (LUZERN).

*mallorcanica* Linsenmaier 1959a:116. (*germari* ssp.). Holotype female; Spain: Mallorca (Verhoef coll. ?).

*subgermari* Linsenmaier 1959a:116. (*germari* ssp.). Holotype female; Cyprus (LUZERN).

*aeneibasalis* Linsenmaier 1987:149. (*germari* ssp.). Holotype female; France: Corsica, Asco (LUZERN).

*gestroi* Gribodo. Palaearctic: Algeria.

*gestroi* Gribodo 1875:359. Holotype male; Algeria (GENOA). (*hydropica* group).\*

*gheudei* Guérin. Afrotropical: Madagascar.

*gheudei* Guérin 1842:145. Holotype male; Madagascar (GENOA). (*lincea* group).\*

*bispilota* Guérin 1842:145. Holotype female; Madagascar (GENOA).\*

*plurimacula* (Brullé) 1846:22. (*Pyria*). Syntype male, female; Madagascar (PARIS ?).

*polystigma* (Buysson) 1887b:199. (*Pyria*). Holotype female (not male); Madagascar (PARIS).\*

*sakalava* (Saussure) 1887:26. (*Pyria*). Holotype female; Madagascar (GENEVA ?).

*gibba* Brullé. Neotropical: Chile, w Argentina.

*gibba* Brullé 1846:31. Holotype male; Chile (PARIS). (*comparata-gibba* group).\*

*gayi* Spinola 1851:406. Holotype female; Chile (TURIN).

*gibbula* Mocsáry. Afrotropical: Gambia.

*gibbula* Mocsáry 1914:27. Holotype female; Gambia (LONDON). (*aureomaculata* group).\*

*gilgitensis* Linsenmaier. Palaearctic: n Pakistan.

*gilgitensis* Linsenmaier 1968:104. Holotype female; Pakistan: Gilgit (LUZERN). (*ignita* group).

*giraudi* Buysson. Palaearctic: Egypt, Middle East.

*giraudi* Buysson 1898b:577. Lectotype female (desig. Bohart herein); Egypt (PARIS). (*pallidicornis* group).\*

*priesneri* Zimmermann 1959:25. Holotype male; Egypt: Abu Rowash (VIENNA ?).

*viridiviolacea* Linsenmaier 1959a:143. Jordan: Ejn Gedde (LUZERN).

*glasunowi* Semenov. Palaearctic: e USSR.

*glasunowi* Semenov 1967:156. Holotype female; Russian SFSR: Lower Volga, Krasnoarmeysk (LENINGRAD). (*succincta* s.s. group).\*

*goethiana* Semenov. Palaearctic: s USSR.

*goethiana* Semenov 1967:148. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). (*elegans* group).\*

*gogorzae* Lichtenstein. Palaearctic: Spain.



- gogorzae* Lichtenstein 1879:165. Type ?; Spain: Nova Corvada (Mus. ?).
- gorislava* Semenov. Palaearctic: Iran.  
*gorislava* Semenov 1967:156. Holotype female; Iran: Bampur, Shishapust (LENINGRAD).  
 (*pallidicornis* group).\*
- gracilentia* Mocsáry. Oriental: China, Hong Kong.  
*gracilentia* Mocsáry 1889:375. Holotype female; Hong Kong (VIENNA). (*ignita* group).
- gracilicornis* Semenov. Palaearctic: s USSR.  
*gracilicornis* Semenov 1892c:78. Holotype male; Turkmen SSR: Tedshen (LENINGRAD).  
 (*pulchella* group).\*
- benjamini* Semenov 1967:157. Holotype female; Turkmen SSR: Bairam-Ali (LENINGRAD).  
 N. synonymy.\*
- gracillima* Förster. Palaearctic: s Europe, Middle East, Morocco.  
*gracillima* Förster 1853:328. Holotype male; Germany (GENEVA). (*varidens-gracillima* group).  
*saussurei* Chevrier 1862:36. Syntype male, female; Europe (Mus. ?).  
*jordanica* Linsenmaier 1959a:89. (*gracillima* ssp.). Holotype male; Jordan (LUZERN).\*\*  
*styx* (Trautmann) 1926a:9. (*Gonochrysis gracillima* var.). Lectotype female (desig. Bohart herein); Italy: Sicily, Taormina (BERLIN).\*
- graelisii* Guérin. Palaearctic: Eurasia, North Africa.  
*graelisii* Guérin 1842:148. Holotype female; Spain: Barcelona (GENOA). (*graelisii* group).\*  
*sybarita* Förster 1853:309. Holotype male; Hungary (BERLIN).  
*chevrieri* Abeille 1877:67. Lectotype female (desig. Kimsey 1986c); Switzerland (PARIS).\*  
*opaca* Linsenmaier 1959a:135. (*sybarita* ssp.). Holotype female; Spain: Soria (LUZERN).
- grandidieri* (Saussure). Afrotropical: Madagascar.  
*grandidieri* (Saussure) 1887:25. (*Chrysoaspis*). Holotype female; Madagascar (PARIS). (*smaragdula* group).\*  
*alluandi* Buysson 1904:272. Holotype female; Madagascar (PARIS).\*
- grandis* Brullé. Neotropical: Chile, w Peru.  
*grandis* Brullé 1846:30. Syntype females; Chile (PARIS). (*grandis* group).\*  
*carinata* Guérin 1842:147. Holotype female; Chile (GENOA). Nec Say 1828.\*  
*chilensis* Spinola 1851:404. Syntype male, female; Chile (TURIN ?)  
*callosa* Mocsáry 1889:406. Lectotype female (desig. Bohart herein); Chile (VIENNA).\*
- greeni* Bingham. Oriental: Sri Lanka.  
*greeni* Bingham 1903:459. Holotype female; Sri Lanka: Tangala (LONDON).\*
- gribodoi* Abeille. Palaearctic: Europe (widespread).  
*gribodoi* Abeille 1877:66. France: La Penne (PARIS). (*succincta* s.s. group).\*

*cratomorpha* Linsenmaier 1968:69. (*gribodoi* ssp.). Holotype male; Greece: Pyrgos (LUZERN).  
*spilota* Linsenmaier 1951:52. (*gribodoi* var.). Switzerland: Wallis (LUZERN).

*grohmanni* Dahlbom. Palaearctic: s Europe, Iran, s USSR, North Africa.

*grohmanni* Dahlbom 1854:271. Syntype females; Italy: Sicily (TURIN). (*succincta* s.s. group).

*gloriosa* Dahlbom 1845:10. Holotype female; locality unknown (STOCKHOLM). Nec Fabricius 1793.

*singula* Radoszkowski 1891:187. (*grohmanni* var.). Syntype females; Turkmen SSR: Ashkabad (KRAKOW ?).

*bolivari* Mercet 1902:222. (*grohmanni* var.). Holotype male; Syria: Marache (Mus. ?).

*chloropyga* (Bischoff) 1910:479. (*Tetrachrysis*). Holotype male; Cameroon: Laros (BERLIN).  
 N. synonymy.\*

*cyanea* Trautmann 1926b:95. (*grohmanni* var.). Syntypes; Algeria: Biskra, Libya: Tripoli, Egypt (BERLIN). Nec Villers 1789.

*gigantea* (Trautmann) 1926a:10. (*Tetrachrysis grohmanni* var.). Type ?; Turkey: Smyrna (BERLIN).

*hyalina* (Trautmann) 1926a:10. (*Tetrachrysis grohmanni* var.). Type ?; Tunisia: Tunis (BERLIN).

*zanoni* Invrea 1929:306. (*grohmanni* var.). Type ?; Libya: Cyrenaica (GENOA).

*nadigorum* Bischoff 1935:19. (*grohmanni* var.). Syntype males; Morocco: Goundafa (BERLIN).

*cyanicolor* Mader 1936:228. Repl. name for *cyanea* Trautmann 1926b.

*affinita* Linsenmaier 1959a:109 (*grohmanni* ssp.). Holotype female; Cyprus (LUZERN).

*erkiana* Linsenmaier 1959a:109. (*grohmanni* ssp.). Holotype female; Yugoslavia: Dalmatia, Krk Isl. (LUZERN).

*creteensis* Linsenmaier 1959b:237. (*grohmanni* ssp.). Holotype female; Greece: Crete (LUZERN).

*subaequalis* Linsenmaier 1968:62. (*grohmanni* ssp.). Holotype male; France: Corsica, Asco (LUZERN).

*grumorum* Semenov. Palaearctic: Tibet.

*grumorum* Semenov 1892a:92. Holotype male (not female); Tibet: Amdo (LENINGRAD). (*ignita* group).\*

*guatemalana* Mocsáry. Neotropical: Guatemala.

*guatemalana* Mocsáry 1912b:566 Holotype male (not female); Guatemala (BUDAPEST). (*venusta* group).\*

*guichardi* Linsenmaier. Palaearctic: Somalia.

*guichardi* Linsenmaier 1968:91. Holotype male; Somalia: Las Musa (LONDON). (*pallidicornis* group).\*

*gujaratica* Nurse. Oriental: e India.

*gujaratica* Nurse 1903a:11. Lectotype male (desig. Bohart herein); India: Deesa (LONDON). (*pallidicornis* group).\*

*gusenleitneri* Linsenmaier. Palaearctic: Turkey.

*gusenleitneri* Linsenmaier 1968:76. Holotype female; Turkey: Karaman (LUZERN). (*aestiva* group).

*gussakowskii* Semenov and Nikol'skaya. Palaearctic: s USSR.

*gussakowskii* Semenov and Nikol'skaya 1954:126. Holotype male; Tadzhik SSR: Kondara (LENINGRAD). (*viridula* group).\*

*bafisi* Semenov. Palaearctic: Iran.

*bafisi* Semenov 1967:159. Holotype female; Iran: Gilyan, Tachinar (LENINGRAD). (*rufitarsis* group).\*

*handlirschi* Mocsáry. Palaearctic: s Europe, Middle East.

*handlirschi* Mocsáry 1889:477. Holotype female; Turkey (VIENNA). (*comparata* s.s. group).

*samia* (Bischoff) 1910:446. (*Pseudogonochrysis*). Holotype female; Greece: Samos Isl. (BERLIN).

*astarte* Balthasar 1953:253. (*handlirschi* ab.). Holotype male; Israel: Jerusalem (PRAGUE). Invalid name.

*hebes* Buysson. Palaearctic: Algeria.

*hebes* Buysson (In André) 1896:719. Lectotype male (desig. Bohart herein); Algeria: Lagouat (PARIS). (*millenaris* group).\*

*hecate* Mocsáry. Oriental: Indonesia.

*hecate* Mocsáry 1889:378. Holotype female; Indonesia: Java (BUDAPEST). (*splendidula-senegalensis* group).\*

*auroprasina* Mocsáry 1912b:560. Holotype female; Indonesia: Molucca, Perak (BUDAPEST). N. synonymy.\*

*hecuba* Mocsáry.

*hecuba* Mocsáry 1889:438. Holotype male; locality unknown (GENOA). (*ignita* group).

*hedychriformis* Mocsáry. Palaearctic: Ethiopia.

*hedychriformis* Mocsáry 1912a:383. Holotype male; Ethiopia: Eritrea, Keren (BUDAPEST). (*comparata-gibba* group).\*

*helenae* Semenov and Nikol'skaya. Palaearctic: s USSR.

*helenae* Semenov and Nikol'skaya 1954:125. Holotype male; Tadzhik SSR: Mikoyanabad (LENINGRAD). (*maculicornis* group).\*

*helleni* Linsenmaier. Palaearctic: Europe (widespread).

*chrysoprasina* Hellen 1919:211. (*succincta* ab.). Type ?; Finland (Mus. ?). Invalid name. Nec Förster 1853.

*helleni* Linsenmaier 1959a:113. Repl. name for *chrysoprasina* Hellen 1919. (*succincta* s.s. group).

*bemera* Semenov and Nikol'skaya. Palaearctic: s USSR.

*bemera* Semenov and Nikol'skaya 1954:115. Holotype male; Uzbek SSR: Stalinabad (LENINGRAD). (*elegans* group).\*

*hemipyrrha* Mocsáry. Oriental: Indonesia, Celebes.

*hemipyrrha* Mocsáry 1899:488. Lectotype female (desig. Bohart 1986b:); Celebes: Patuhuang (BUDAPEST). (*lincea* group).\*

*hephaestites* Harris. Palaearctic.

*hephaestites* Harris 1776:69. Type ?; England (lost). Unknown species.

*heraklionica* Linsenmaier. Palaearctic: Greece, Crete.

*heraklionica* Linsenmaier 1968:64. Holotype female; Greece: Crete, Heraclion (LUZERN). (*succincta* group).

*herzensteini* Semenov. Palaearctic: Iran.

*herzensteini* Semenov 1892a:94. Holotype male; Iran: Beschreiburg (LENINGRAD). (*rufitarsis* group).\*

*hewittii* Cameron. Oriental: Borneo.

*hewittii* Cameron 1908:61. Lectotype female (desig. Bohart herein); Borneo (LONDON). (*ignita* group).\*

*heymonsi* (Bischoff). Afrotropical: widespread.

*heymonsi* (Bischoff) 1910:492. (*Hexachrysis*). Holotype female; Guinea: Nkolentangan (BERLIN). (*heymonsi* group).\*

*provincialis* Mocsáry 1913a:34. Holotype female; Ethiopia: Eritrea, Keren (BUDAPEST). N. synonymy.\*

*vumba* Edney 1954b:638. Holotype female; Zimbabwe: Vumba Mts. (CAPE TOWN). N. synonymy.\*

*hirtipes* Buysson. Palaearctic: Algeria.

*hirtipes* Buysson 1898a:145. Holotype female; Algeria (PARIS). (*bihamata* group).\*

*hoberlandti* Balthasar. Palaearctic: Middle East.

*hoberlandti* Balthasar 1953:188. Holotype male; Israel: Jerusalem (PRAGUE).\*\*

*hoggei* Nurse. Palaearctic: Pakistan.

*hoggei* Nurse 1903b:40. Syntype males; Pakistan: Quetta (Mus ?).

*honorata* Mocsáry. Afrotropical: Uganda, Kenya, South Africa.

*honorata* Mocsáry 1914:64. Holotype female; Uganda: Entebbe (LONDON). (*smaragdula* group).\*

*hoozana* Mocsáry. Palaearctic: Taiwan.

*hoozana* Mocsáry 1913b:615. Holotype female (not male); Taiwan: Hoozana (BUDAPEST). (*ignita* group).\*



*hoplites* Mocsáry. Afrotropical: South Africa.

*hoplites* Mocsáry 1902*b*:550. Holotype male; South Africa: Cape Prov., Uitenhage (PRETORIA-TM). (*wahlbergi* group).\*

*colonialis* Mocsáry 1908*b*:518. Lectotype male (desig. Bohart 1986*b*:); South Africa: Cape Prov. (BUDAPEST). N. synonymy.\*

*horvathi* Mocsáry. Palaearctic: Turkey.

*horvathi* Mocsáry 1912*b*:591. Lectotype female (desig. Bohart (1986*b*:); Turkey: Smyrna (BUDAPEST). (*succincta* s.s. group).\*

*humeralis* Klug. Palaearctic: North Africa (Ethiopia, Egypt).

*humeralis* Klug 1845:Table 45 Fig. 7. Type ?; Ethiopia: Ambukohl (BERLIN). (*pallidicornis* group).

*vestita* Buysson 1898*a*:139. Lectotype female (desig. Bohart herein); Egypt: Koubbeh (PARIS).\*

*hyacinthus* Semenov. Palaearctic: n China.

*hyacinthus* Semenov 1967:168. Holotype female; n China: Gashun (LENINGRAD). (*splendidula-senegalensis* group).\*

*hyalinipennis* Mocsáry. Palaearctic: Ethiopia.

*hyalinipennis* Mocsáry 1912*a*:392. Lectotype female (desig. Bohart 1986*b*:); Ethiopia: Eritrea, Assab (BUDAPEST). (*comparata-scutellaris* group).\*

*hydra* Semenov. Palaearctic: Iran.

*hydra* Semenov 1967:164. Holotype male; Iran: Khorasan, Khouz-Muzafyr (LENINGRAD).\*

*hydropica* Abeille. Palaearctic: s Europe, North Africa.

*hydropica* Abeille 1878:4. Holotype male; France: Marseille (PARIS ?). (*hydropica* group).\*

*punica* (Bischoff) 1910:455. (*Holochrysis*). Holotype male (not female); Tunisia: Hochplateau (BERLIN). N. synonymy.\*

*idolon* Semenov. Palaearctic: s USSR.

*idolon* Semenov 1910:225. Holotype female; Kirghiz SSR: 'Kirgisorum' (LENINGRAD). (*ebrenbergi* group).\*

*ignescosa* Linsenmaier. Palaearctic: Cyprus.

*ignescosa* Linsenmaier 1959*a*:120. Holotype male; Cyprus (LUZERN). (*succincta-leachii* group).

*igniceps* Mocsáry. Oriental: Philippines.

*igniceps* Mocsáry 1893:233. Holotype female; Philippines: Mindanao Isl. (BUDAPEST). (*smaragdula* group).\*

*ignicollis* (Trautmann). Palaearctic: Rumania, Greece.

*ignicollis* (Trautmann) 1926*a*:8. (*Holochrysis angustifrons* var.). Type ?; Greece: Rhodes Isl.

(BERLIN). (*elegans* group).

*ignifascia* Mocsáry. Oriental: Burma, China.

*ignifascia* Mocsáry 1893:215. Holotype female; Burma (GENOA). (*capitalis* group).\*

*birmanica* Mocsáry 1893:214. Holotype male; Burma (GENOA).\*

*ignigena* Linsenmaier. Palaearctic: Cyprus.

*ignigena* Linsenmaier 1959a:120. Holotype male; Cyprus (LUZERN). (*succincta-leachii* group).

*ignita* (Linnaeus). Palaearctic: widespread.

*ignita* (Linnaeus) 1758:571. (*Sphex*). Lectotype male (desig. Bohart herein); Europe (LONDON). (*ignita* group).\*

*cyanochrysis* Förster 1771:86. Type ?; Spain (lost ? see Day and Fitton 1977).

*coccinea* Retzius 1783:66. Type ?; locality unknown (Mus. ?).

*inermis* Gmelin 1790:2747. Type ?; Europe (destroyed).

*alcione* Shuckard 1836:161. (*ignita* var.). Type ?; England (lost ?).

*electra* Shuckard 1836:162. (*ignita* var.). Type ?; England (lost ?).

*maja* Shuckard 1836:162. (*ignita* var.). Type ?; England (lost ?).

*asterope* Shuckard 1836:162. (*ignita* var.). Type ?; England (lost ?).

*taygeta* Shuckard 1836:162. (*ignita* var.). Type ?; England (lost ?).

*celeno* Shuckard 1836:162. (*ignita* var.). Type ?; England (lost ?).

*obsoleta* Dahlbom 1845:8. Holotype male; Europe (STOCKHOLM).

*curvidens* Dahlbom 1854:288. (*ignita* var.). Holotype male; central Europe (LUND).

*terminata* Dahlbom 1854:261. Holotype; Austria (VIENNA).

*brevidentata* Schenck 1856:30. Type ?; Germany: Nassau region (FRANKFURT).

*impressa* Schenck 1856:29. Lectotype female (desig. Morgan 1984); Germany: Nassau region (FRANKFURT).

*vitripennis* Schenck 1856:28. Type ?; Germany: Nassau region (FRANKFURT).

*fairmairei* Mocsáry 1889:485. (*ignita* var.). Holotype male; Algeria: Oran (Fairmaire coll.).

*kirschii* Mocsáry 1889:485. Holotype female; Morocco (DRESDEN, destroyed).

*infuscata* Mocsáry 1889:490. (*ignita* var.). Lectotype female (desig. Móczár 1965); Algeria (BUDAPEST). Nec Brullé 1846.\*

*cuprata* Mocsáry 1890:64. (*ignita* var.). Lectotype female (desig. Bohart 1986b); Greece (BUDAPEST). Nec Dahlbom 1854.\*

*magnidens* Perez 1894:198. (*ignita* var.). Type ?; Spain: Canary Isl. (Mus. ?).

*cypria* (Trautmann) 1927:147. (*Tetrachrysis ignita* var.). Lectotype female (desig. Bohart herein); Cyprus: Nicosia (BERLIN). Nec Buysson 1898b.\*

*cyprica* Enslin 1950:665. Repl. name for *cypria* Trautmann 1927.

*subcoeruleans* Buysson (In André) 1985:580. (*ignita* var.). Holotype female; Italy (GENOA ?).

*violacea* Uchida 1927:155. (*ignita* var.). Syntype male, female; Japan (HOKKAIDO). Nec Schrank 1802.

*fulgidaeformis* Bischoff 1930:224. (*ignita* ssp.). Holotype; USSR: Kirgiz SSR: 'Pamirs'

(BERLIN).

*jezoana* Uchida 1933:4. Repl. name for *violacea* Uchida 1927.

*viridefasciata* Hoffmann 1935:228. (*ignita* ssp.). Type ?; Austria: Vienna (Mus. ?).

*aurifera* Linsenmaier 1951:76. (*ignita* var.). Syntypes; Europe (LUZERN).

*excavata* Haupt 1956:114. (*ignita* ssp.) Type ?; central Europe (HALLE ?). Nec Brullé 1846.

*bischoffi* Linsenmaier 1959a:157. (*ignita* ssp.). Holotype female; France: Frejus (LUND).

*schenckiana* Linsenmaier 1959a:156. (*ignita* ssp.) Holotype female; Switzerland: Graubunden (LUZERN). Nec Mocsáry 1912a:.

*melaensis* Linsenmaier 1968:99. (*ignita* ssp.) Holotype male; France: Corsica, Col de Mela (LUZERN).

*schencki* Linsenmaier 1968:99. Repl. name for *schenckiana* Linsenmaier 1959a:.

*pseudignita* Linsenmaier 1987:152. (*magnidens* ssp.). Holotype male; Spain: Palma (LUZERN).

*illecebrosa* Semenov. Palaearctic: n China.

*illecebrosa* Semenov 1967:166. Holotype male; n China: Bugas at Khami (LENINGRAD). (*comparata* s.s. group).\*

*illudens* Buysson. Palaearctic: Algeria.

*illudens* Buysson (In André) 1894:334. Holotype male; Algeria (PARIS). (*millenaris* group).\*

*immaculata* Buysson. Palaearctic: central Europe.

*immaculata* Buysson 1898a:138. Holotype male; France: Macon (PARIS ?). (*ignita* group).

*impar* Dahlbom. Palaearctic: Greek Isls.

*impar* Dahlbom 1854:287. Holotype male; Greece: Rhodes Isl. (BERLIN). (*comparata* s.s. group).

*imperatrix* Buysson. Palaearctic: s USSR, Iran, Middle East.

*imperatrix* Buysson 1887b:190. Holotype male; USSR: 'Turkestan' (PARIS). (*comparata* s.s. group).\*

*apiata* Buysson 1900:149. Holotype male; Iran: Tehran (PARIS).\*

*houskiana* Balthasar 1953:232. (*apiata* ssp.). Holotype female; Israel: Jerusalem (PRAGUE).

*imperialis* Westwood. Oriental: e central India.

*fasciata* Donovan 1800:56. India: Tranquebaria (Mus. ?). Nec Olivier 1790.

*imperialis* Westwood 1842:87. Repl. name for *fasciata* Donovan 1800.

*impostor* Mocsáry. Australian: Australia, Tasmania.

*parallela* Smith 1874b:458. Lectotype female (desig. Bohart herein); Australia (LONDON). Nec Brullé 1846.\*

*impostor* Mocsáry 1887a:15. Repl. name for *parallela* Smith 1874b. (*impostor* group).

*novaræ* Mocsáry 1889:381. Holotype male; Australia (VIENNA). N. synonymy.\*

*muelleri* Buysson 1898b:530. Lectotype female (desig. Bohart herein); Australia (PARIS). Nec Brullé 1846. N. synonymy.\*

- observata* Buysson 1898b:531. Holotype female; Australia: Tasmania (PARIS). N. synonymy.\*
- verreauxi* Buysson 1898b:530. Lectotype male (desig. Bohart herein); Australia: Tasmania (PARIS). N. synonymy.\*
- w-carinata* Linsenmaier 1982:337. Holotype male; Australia: South Australia, Rostrevor (LUZERN). N. synonymy
- impudens* Edney. Afrotropical: Mali to Zimbabwe.
- impudens* Edney 1954a:553. Lectotype male (desig. Bohart herein); Zimbabwe: Bulawayo (CAPE TOWN). (*splendidula-senegalensis* group).\*
- inaequidens* Dahlbom. Nearctic: widespread.
- inaequidens* Dahlbom 1854:334. Holotype male; USA: New York (LUND). (*smaragdula* group).\*
- texana* Gribodo 1879:329. Lectotype male (desig. Bohart 1962); USA: Texas (GENOA).\*
- inaequalis* Dahlbom. Palaearctic: Eurasia, Middle East, North Africa.
- inaequalis* Dahlbom 1845:8. Holotype; Turkey: Bosfor (STOCKHOLM). (*inaequalis* group).
- taeniophrys* Förster 1853:325. Holotype female; s Europe (BERLIN).
- placida* Mocsáry 1879a:122. Holotype male; Hungary: Budapest (BUDAPEST).\*
- caucasica* Mocsáry 1889:484. (*inaequalis* var.). Holotype male; USSR: 'Transcaucasia', Helendorf (VIENNA ?). Nec Radoszkowski 1876a:.
- sapphirina* Semenov 1912:194. Holotype male; Kirghiz SSR: Semiretshje (LENINGRAD). N. synonymy.\*
- bifasciata* Hoffmann 1937:491. Type ?; Austria (Mus. ?).
- poetica* Semenov 1954a:131. Repl. name for *caucasica* Mocsáry 1889.
- cypernensis* Linsenmaier 1987:153. (*inaequalis* ssp.). Holotype female; Cyprus: Cherkess (LUZERN).
- inaequipunctata* (Bischoff). Palaearctic: s USSR.
- inaequipunctata* (Bischoff) 1910:462. (*Tetrachrysis*). Lectotype female (desig. Bohart herein); Uzbek SSR: Bukhara (Bukhara) (BERLIN). (*ignita* group).\*
- rogneda* Semenov 1967:179. Holotype female; Uzbek SSR: Tashkent (LENINGRAD). N. synonymy.\*
- inambitiosa* Linsenmaier. Palaearctic: Middle East, Turkey.
- inambitiosa* Linsenmaier 1959a:111. Holotype male; Jordan (LUZERN). (*succincta* group).
- inclinata* Linsenmaier. Palaearctic: Greece, Turkey.
- inclinata* Linsenmaier 1959a:110. Holotype male; Greece: Corfu Isl. (LUZERN). (*succincta* s.s. group).
- indica* Schrank. Palaearctic: central and s Europe, North Africa, s USSR.
- indica* Schrank 1804:345. Type ?; Germany: Bavaria (Mus. ?). (*ignita* group).
- indigotea* Dufour and Perris 1840:38. Holotype male; no locality (PARIS). N. synonymy.\*
- janthina* Förster 1853:318. Holotype male; s Europe (BERLIN). N. synonymy.



- dufourii* Abeille 1879:45. Syntypes; France (PARIS ?).
- daghestanica* Mocsáry 1889:347. (*indigotea* var.). Type ?; Armenian SSR: Daghestan (Mus. ?).
- declarata* Linsenmaier 1968:104. (*indigotea* ssp.). Holotype male; Cyprus: Pera Pedi (LUZERN).
- indigens* Buysson. Afrotropical: central Africa to South Africa.
- indigens* Buysson 1891:40. Holotype female; Sierra Leone (PARIS). (*comparata-gibba* group).\*
- gnatho* Mocsáry 1914:39. Holotype female; Zaire: Katanga (LONDON). N. synonymy.\*
- purpuripyga* Edney 1962:864. Holotype female; Zambia: Abercorn (CAPE TOWN). N. synonymy.\*
- infans* Mocsáry. Palaearctic: s USSR.
- infans* Mocsáry 1912b:592. Holotype male; USSR: 'Caucasus', Mt. Armenia (BUDAPEST).\*
- infantula* Semenov. Palaearctic: s USSR.
- infantula* Semenov 1967:155. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). (*succincta-leachii* group).\*
- inflata* Aaron. Nearctic: w USA, w Canada, n Mexico.
- inflata* Aaron 1885:237. Lectotype male (desig. Cresson 1928); USA: California ('So. Cal.') (PHILADELPHIA). (*ignita* group).\*
- nokomis* Rohwer 1909:89. Lectotype male (desig. Bohart 1982); USA: Colorado, Denver (WASHINGTON).\*
- infuscata* Brullé. Afrotropical: South Africa.
- infuscata* Brullé 1846:47. Holotype male; South Africa: Cape Prov. (GENOA). (*capitalis* group).\*
- inimica* Mocsáry. Afrotropical: South Africa.
- inimica* Mocsáry 1902b:552. Lectotype female (desig. Bohart herein); South Africa: Cape Prov., Uitenhage (BUDAPEST). (*delicatula* group).\*
- insolita* Mocsáry. Palaearctic: Ethiopia, Afrotropical: Nigeria.
- insolita* Mocsáry 1913a:10. Lectotype female (desig. Bohart 1986b); Ethiopia: Eritrea, Takkeseh (BUDAPEST). (*insolita* group).\*
- insperata* Chevrier. Palaearctic: central and s Europe, s USSR.
- insperata* Chevrier 1870:265. Holotype male; Switzerland (Mus. ?). (*splendidula* s.s. group).
- prominentula* Linsenmaier 1959a:129. (*insperata* ssp.). Holotype female; Cyprus (LUZERN).
- insularis* Guérin. Nearctic: Cuba, Neotropical: Dominican Rep.
- insularis* Guérin 1842:148. Lectotype female (desig. Bohart herein); Cuba (GENOA). (*smaragdula* group).\*
- consimilis* Cresson 1865a:110. Holotype female; Cuba (PHILADELPHIA).\*
- dubia* Cresson 1865a:108. Holotype female; Cuba (PHILADELPHIA). Nec Rossi 1790 (a masarid).\*

*subviridis* Cresson 19865a:109 Holotype male; Cuba (PHILADELPHIA). N. synonymy.\*  
*cubensis* Mocsáry 1931a:32. Lectotype female (desig. Bohart 1986b); Cuba: Guantanamo (BUDAPEST).\*

*integra* Fabricus. Palaearctic: s Europe, Morocco.

*integra* Fabricus 1787:283. Holotype; Spain (COPENHAGEN), (*viridula* group).

*cingulata* Förster 1853:323. Holotype male; s. Europe (BERLIN).

*erythromelas* Dahlbom 1854:155. Holotype female (?); Italy: Sicily (STOCKHOLM).

*sehestedti* Dahlbom 1854:238. Holotype; Morocco: Tangier (COPENHAGEN).\*

*sicula* Abeille 1978:3. Holotype male; Italy: Sicily (PARIS).\*

*madridensis* Buysson (In André) 1895:524. (*bidentata* var.). Holotype male; Spain: Madrid (PARIS ?).

*interceptor* Smith. Australian: Australia (widespread).

*interceptor* Smith 1874b:457. Holotype female; Australia: New South Wales, Hunter River (LONDON). (*interceptor* group).\*

*elevodentata* Linsenmaier 1982:340. Holotype female; Australia: N. Queensland: Kuranda (LONDON). N. synonymy.\*

*intercurra* Linsenmaier. Palaearctic: Middle East.

*intercurra* Linsenmaier 1968:58. Holotype female; Jordan: Ejn Moor (LUZERN). (*pulchella* group).

*interjecta* Buysson. Palaearctic: s Europe, Iraq, Middle East.

*interjecta* Buysson (In André) 1895:541. Syntype males, females; France: Provence (PARIS ?). (*aestiva* group).

*rosina* Balthasar 1949:2. Syntype male, female; Czechoslovakia (PRAGUE).\*

*hemichlora* Linsenmaier 1951:66. (*interjecta* var.). Syntype males, females; Cyprus (LUZERN?).

*robusta* Linsenmaier 1951:65. (*interjecta* var.). Syntype male, female; Spain (LUZERN). Nec Mocsáry 1909b.

*mediana* Linsenmaier 1987:149. (*interjecta* ssp.). Holotype male; Morocco: Tetouan (LUZERN).

*interpellator* Linsenmaier. Palaearctic: Lebanon, Turkey.

*interpellator* Linsenmaier 1968:95. Holotype female; Lebanon (LUZERN). (*comparata* s.s. group).

*intricans* Spinola. Nearctic (Mexico) to Neotropical (Argentina).

*intricans* Spinola 1840:203. Holotype male; French Guiana: Cayenne (TURIN). (*intricans* group).

*fasciata* Spinola 1840:202. Holotype male; French Guiana (TURIN ?). Nec Olivier 1790.

*intricata* Brullé. Nearctic: southernmost USA to Neotropical (Argentina).

*intricata* Brullé 1846:25. Syntype females; French Guiana: Cayenne (lost). (*smaragdula* group).

- smidti* Dahlbom 1854:317. Syntype females; South America: 'America meridionali' (LUND).
- aequinoctialis* Dahlbom 1854:330. Syntype male, female; Brazil (TURIN).\*
- anceps* Gribodo 1879:327. Lectotype female (desig. Bohart herein); Brazil (COPENHAGEN).\*
- cognata* Gribodo 1879:328. Holotype female; 'sed sine dubio America' (BRUSSELS).\*
- proxima* Cameron 1888:465. Holotype female; Panama (LONDON).\*
- schulthessi* Mocsáry 1889:572. Lectotype male (desig. Bohart herein); Mexico: Cuernavaca (VIENNA).\*
- aenescens* Mocsáry 1889:577. Holotype female; French Guiana: Cayenne (VIENNA).
- henrici* Buysson 1891:44. Holotype female; Mexico (PARIS ?).
- peruviana* Buysson 1898b:540. Holotype male (not female); Peru (PARIS).\*
- aperta* Buysson 1898b:559. Holotype male; Mexico: 'Vera Cruz' (PARIS).\*
- hexodontophora* (Bischoff) 1910:491. (*Hexachrysis*). Holotype female; Paraguay (BERLIN).\*
- intrudens* Smith. Australian: New Guinea, Solomon Isls., Australia (n Queensland).
- intrudens* Smith 1865:62. Holotype female; New Guinea (OXFORD). (*smaragdula* group).\*
- melanops* Kirby 1883:345. Holotype female; Timor Laut Isl. (LONDON).\*
- triangulata* Mocsáry 1889:491. Holotype female; Papua New Guinea (BUDAPEST).\*
- oceanica* Mocsáry 1902a:347. Holotype female; Solomon Isl. (BUDAPEST).\*
- inquisitor* Mocsáry 1913a:31. Lectotype female (desig. Bohart 1986b); Australia: Queensland, Cooktown (BUDAPEST). N. synonymy.\*
- invreai* Balthasar. Palaearctic: Middle East, w USSR.
- invreai* Balthasar 1953:256. Holotype female; Jordan: Wadi el Kelt (PRAGUE). (*maculicornis* group).\*
- uvarovi* Semenov 1967:165. Holotype male; Ukrainian SSR: 'Ciscaucasia', lower Kuma River (LENINGRAD). N. synonymy.\*
- io* Semenov. Palaearctic: sw USSR.
- io* Semenov 1967:150. Holotype female; Ukrainian SSR: Crimea, Simferopol (LENINGRAD). (*elegans* group).\*
- iocosa* Linsenmaier. Palaearctic: Turkey.
- iocosa* Linsenmaier 1968:75. Holotype male; Turkey: Pamukkale (LUZERN). (*aestiva* group).
- ionophris* Mocsáry. Oriental: Burma, Laos, Sumatra, Hong Kong, Taiwan.
- ionophris* Mocsáry 1893:226. Holotype female; Burma (GENOA). (*splendidula-senegalensis* group).
- schenklingi* Mocsáry 1913b:618. Lectotype female (desig. Bohart 1986b); Taiwan (BUDAPEST). N. synonymy.\*
- irenes* Semenov and Nikol'skaya. Palaearctic: s USSR.
- irénes* Semenov and Nikol'skaya 1954:120. Holotype female; Tadzhik SSR: Kondara (LENINGRAD). (*succincta* s.s. group).\*
- irreperita* Linsenmaier. Palaearctic: Morocco, Spain.

- irreperta* Linsenmaier 1959a:111. Holotype male; Morocco: Casablanca (LUZERN). (*succincta* s.s. group).
- almeriana* Linsenmaier 1959a:112. (*irreperta* ssp.). Holotype male; Spain: Almeria, Chirivel (LUZERN).
- irwini* Bohart. Nearctic: w USA.
- irwini* Bohart 1966c:133. Holotype male; USA: California, Yolo Co., Davis (DAVIS). (*pattoni* group).\*
- israelia* Linsenmaier. Palaearctic: Middle East.
- israelia* Linsenmaier 1959a:116. Holotype female; Israel (LUZERN). (*succincta* s.s. group).
- iwata* Tosawa. Palaearctic: Japan.
- iwata* Tosawa 1942:12. Type ?; Japan (OSAKA).
- jakovlevi* Semenov. Palaearctic: Turkey.
- jakovlevi* Semenov 1967:169. Holotype female; Turkey: Karaduly, \*Araxes River (LENINGRAD). (*comparata-scutellaris* group).\*
- jalala* Nurse. Palaearctic: n Pakistan.
- jalala* Nurse 1902:306. Lectotype female (desig. Bohart herein); Pakistan: Kashmir (LONDON). (*capitalis* group).\*
- jansei* Edney. Afrotropical: South Africa.
- jansei* Edney 1952:438. Lectotype male (desig. Bohart herein); South Africa: Cape Prov., Willowmore (PRETORIA- TM). (*exsecata* group).\*
- japonica* Cameron. Palaearctic: Japan, Korea, e USSR.
- japonica* Cameron 1887:125. Lectotype female (desig. Bohart herein); Japan (LONDON). (*ignita* group).\*
- astuta* Mocsáry 1912b:562. Holotype male; Japan (BUDAPEST).\*
- daurica* Mocsáry 1914:16. Holotype male (not female); Russian SFSR: 'Transbaical', Tschita (BUDAPEST).\*
- cyanea* Uchida 1927:153. (*japonica* var.). Syntype male, female; Japan, Korea: (HOKKAIDO). Nec *cyanea* Villers 1789.
- jaxartis* Semenov. Palaearctic: s USSR.
- jaxartis* Semenov 1910:222. (*sybarita* var.). Holotype male; Kazakh SSR: Dzhulek (LENINGRAD). (*graeli* group).\*
- jelisyni* Radoszkowski. Palaearctic: Mongolia.
- jelisyni* Radoszkowski 1891:186. Syntype females; Mongolia; Kansu (KRAKOW ?). (*comparata-scutellaris* group).
- joppensis* Buysson. Palaearctic: Middle East.
- joppensis* Buysson 1887b:179. Holotype male; Israel: Jaffa (PARIS). (*elegans* group).\*



*jousseamei* Buysson. Afrotropical: Somalia to South Africa.

*jousseamei* Buysson 1898b:538. Holotype male; Somalia: Djibouti (PARIS). (*smaragdula* group).\*

*whiteana* (Cameron) 1906b:412. (*Hexachrysis*). Holotype female; South Africa (LONDON). N. synonymy.\*

*rubroviolacea* Mocsáry 1913a:20. Lectotype male (desig. Bohart 1986b); South Africa: Cape Prov., Willowmore (BUDAPEST).\*

*jucunda* Mocsáry. Palaearctic: se Europe.

*jucunda* Mocsáry 1889:430. Holotype female; Turkey: Macedonia (Wustnei coll. ?). (*varidens* s.s. group).

*judaica* Buysson. Palaearctic: Cyprus, Ethiopia.

*judaica* Buysson 1898b:554. Type ?; Cyprus (PARIS ?). (*comparata*-*scutellaris* group).

*rubropicta* Buysson 1904:270. Holotype female; Ethiopia (FRANKFURT). N. synonymy.\*

*jugum* Dahlbom. Afrotropical: South Africa.

*jugum* Dahlbom 1850:136. Holotype male; South Africa: 'Caffria' (STOCKHOLM). (*capitalis* group).\*

*juno* Semenov. Palaearctic: s USSR.

*juno* Semenov 1967:177. Holotype male; Kazakh SSR: Ber-Chogur (LENINGRAD ?).

*karafutonis* Tosawa. Palaearctic: ne USSR.

*karafutonis* Tosawa 1932:35. Holotype male; ne USSR: Sakhalin Isl., Yubochaku (OSAKA). (*varidens*-*gracillima* group).

*karooicola* Edney. Afrotropical: South Africa.

*karooicola* Edney 1952:434. Holotype female, South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*exsecata* group).\*

*kashgarica* Mocsáry. Palaearctic: w China.

*kashgarica* Mocsáry 1912b:550. Holotype male; China: Sinkiang, Kashgar (BUDAPEST). (*ignita* group).\*

*katangana* Mocsáry. Afrotropical: central Africa.

*katangana* Mocsáry 1914:38. Holotype male; Zaire: Katanga (LONDON). (*westermanni* group).\*

*keriensis* Radoszkowski. Palaearctic: Mongolia.

*keriensis* Radoszkowski 1887:47. Holotype female; Mongolia: Keria- Daria (KRAKOW ?).

*kenyana* Bohart. Afrotropical: Kenya.

*kenyana* Bohart 1988d:282. Holotype female; Kenya: Tiwi Beach (COPENHAGEN). (*splendidula*-*senegalensis* group).\*

*kerteszi* Mocsáry. Palaearctic: s USSR.

*kerteszi* Mocsáry 1912a:387. Holotype female; Kazakh SSR: Syr-Daria (BUDAPEST). (*comparata-gibba* group).\*

*kessleri* Radoszkowski. Palaearctic: s USSR.

*kessleri* Radoszkowski 1877:21. Lectotype male (not female) (desig. Bohart herein); Kazakh SSR: Sarafschan Valley (MOSCOW). (*succincta* s.s. group).\*

*infernalis* Semenov 1967:156. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD). N. synonymy.\*

*kimberleyana* Mocsáry. Afrotropical: South Africa.

*kimberleyana* Mocsáry 1914:40. Holotype male (not female); South Africa: Cape Prov., Kimberley (CAPE TOWN). (*comparata-scutellaris* group).\*

*knowltoni* Bohart. Nearctic: w USA.

*knowltoni* Bohart 1982:105. Holotype male; USA: Utah, Roosevelt (DAVIS). (*succincta* s.s. group).\*

*koblii* Mocsáry. Palaearctic: Greece.

*koblii* Mocsáry 1889:275. Syntype male, female; Greece (VIENNA, BUDAPEST, ATHENS). (*elegans* group).

*kokandica* Radoszkowski. Palaearctic: s USSR.

*kokandica* Radoszkowski 1877:18. Lectotype male (desig. Bohart herein); Uzbek SSR: Fergana, Kokand (MOSCOW). (*splendidula* group).\*

*acceptabilis* Radoszkowski 1891:197. Type ?; Turkmen SSR: Serakhs (KRAKOW ?).

*sarakhsensis* Radoszkowski 1891:195. Type ?; Turkmen SSR: Sarakhs (KRAKOW ?).

*centralis* Semenov 1967:168. Holotype male; Kirghiz SSR: Taldy-Bulak (LENINGRAD). Nec Mocsáry 1914.\*

*kokuevi* Semenov. Pakistan: n China.

*kokuevi* Semenov 1967:178. Holotype male; n China: Dyn-yuan-in oasis (LENINGRAD).\*

*kolazyi* Mocsáry. Palaearctic: Austria, sw USSR.

*kolazyi* Mocsáry 1889:464. Holotype female; Austria (BUDAPEST). (*succincta* s.s. group).\*

*sareptana* (Trautmann) 1926a:10. (*Tetrachrysis grohmanni* var.). Type ?; Russian SFSR: Sarepta (BERLIN).

*komachi* Tsuneki. Palaearctic: Japan.

*komachi* Tsuneki 1954:39. Holotype female; Japan: Fukui, Katsuyama (OSAKA). (*ignita* group).

*komarowi* Radoszkowski. Palaearctic: s USSR, Iran, Pakistan.

*komarowi* Radoszkowski 1891:190. Holotype female; Turkmen SSR: Ashkabad (KRAKOW?). (*cerastes* group).

*konyaca* Linsenmaier. Palaearctic: Turkey.

- konyaca* Linsenmaier 1968:64. Holotype female, Turkey: Konya (LUZERN). (*succincta* s.s. group).
- korbiana* Mocsáry. Palaearctic: s USSR, n Pakistan.
- korbiana* Mocsáry 1912a:412. Lectotype female (desig. Bohart 1986b); Uzbek SSR: Fergana (BUDAPEST). (*ignita* group).\*
- kozlovi* Semenov. Palaearctic: Mongolia.
- kozlovi* Semenov 1967:160. Holotype male; Mongolia: Alashan, Uzosto Canyon (LENINGRAD). (*rufitarsis* group).\*
- krebsi* (Bischoff). Afrotropical: Malawi and Gambia to South Africa.
- krebsi* (Bischoff) 1910:447. (*Pseudogonochrysis*). Holotype male; South Africa: Cape Prov. ('Capland') (BERLIN). (*comparata-gibba* group).\*
- sarta* Edney 1954a:585. Holotype female; Zimbabwe: Gwaai (CAPE TOWN). N. synonymy.\*
- krombeini* Bohart. Nearctic: e and sw USA.
- krombeini* Bohart 1982:100. Holotype male; USA: Florida, Gainesville (DAVIS). (*dugesi* group).\*
- krueperi* Mocsáry. Palaearctic: Greece, Turkey.
- krueperi* Mocsáry 1889:216. Lectotype female (desig. Móczár 1965); Greece: 'Parnass' (VIENNA). (*millenaris* group).
- bilobata* Balthasar 1953:178. (*millenaris* var.). Type ?; Turkey (PRAGUE).\*\*
- zimmermanni* Balthasar 1953:212. Holotype female; Jordan: Mistra (PRAGUE).
- krugerana* Bohart. Afrotropical: South Africa.
- krugerana* Bohart 1988d:283. Holotype male; South Africa: Transvaal Prov., Kruger National Park (PRETORIA- NIC) (*cerastes* group).\*
- krugeri* Edney. Afrotropical: South Africa.
- krugeri* Edney 1947:188. Lectotype male (desig. Bohart herein); South Africa: Cape Prov., Matjesfontein (LONDON).\*
- kukunorensis* Semenov. Palaearctic: n China.
- kukunorensis* Semenov 1967:178. Holotype female; n China: se Lake Kukunor (LENINGRAD ?).
- laborans* Costa. Afrotropical: Sierra Leone and Kenya to South Africa.
- laborans* Costa 1865:68. South Africa: Natal ('Porto Natal'). (NAPLES). (*wahlbergi* group).\*
- mucronata* Dahlbom 1854:344. Holotype female; South Africa: Cape Prov. (TURIN). Nec Brullé 1846. N. synonymy.
- mucronifera* Abeille 1879:42. Repl. name for *mucronata* Dahlbom 1854.
- mucronifera* Mocsáry 1887:15. Repl. name for *mucronata* Dahlbom 1854. Nec Abeille 1879.
- heros* Buysson 1891:45. Holotype female; Sierra Leone (PARIS).\*

*insignita* Mocsáry 1902b:569. Holotype female; Zimbabwe: Salisbury (PRETORIA-TM). N. synonymy.\*

*lethifera* Mocsáry 1913a:35. Holotype female; Tanzania: Kigonsera (BUDAPEST). N. synonymy.\*

*laeta* Dahlbom. Afrotropical: widespread.

*laeta* Dahlbom 1854:223. Lectotype female (desig. Bohart herein); 'Guinea' (COPENHAGEN). (*splendidula-senegalensis* group).\*

*fraudulenta* Mocsáry 1902b:555. Holotype male; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM).\*

*microgona* Mocsáry 1908b:516. Holotype male; South Africa: Transvaal, Johannesburg (PRETORIA-TM). N. synonymy.\*

*oligotrema* Mocsáry 1912a:396. Holotype male; Ethiopia: Shirati (BUDAPEST). N. synonymy.\*

*katonae* Mocsáry 1912a:395. Holotype female; e. Africa: Ngare- Dowash (PRETORIA-TM). N. synonymy.\*

*assabensis* Mocsáry 1912a:391. Lectotype female (desig. Bohart 1986b); Ethiopia: Eritrea, Assab (BUDAPEST). N. synonymy.\*

*laetabilis* Buysson. Palaearctic: North Africa to Afrotropical: South Africa.

*laetabilis* Buysson 1887b:188. Holotype female; Egypt (PARIS ?). (*comparata-scutellaris* group).

*scutellata* Mocsáry 1890:57. Holotype female; South Africa: 'Cape of Good Hope' (CAPE TOWN). N. synonymy.\*

*roberteana* (Cameron) 1906b:415. (*Heptachrysis*). Holotype female; South Africa: Pearston (LONDON). N. synonymy.\*

*nyansana* Mocsáry 1912a:394. Holotype female; Kenya: Victoria- Nyansa (BUDAPEST). N. synonymy.\*

*laevicypeata* Edney. Afrotropical: South Africa.

*laevicypeata* Edney 1954b:648. Syntype males; South Africa: Cape Prov., Willowmore and Dunbrody (CAPE TOWN). (*splendens* group).\*

*laevicollis* Buysson. Oriental: Philippines.

*laevicollis* Buysson 1898b:560. Holotype female (not male); Philippines: Luzon (PARIS). (*lincea* group).\*

*laevimarginata* Linsenmaier. Neotropical: Peru.

*laevimarginata* Linsenmaier 1987:154. Holotype female; Peru (LUZERN). (*grandis* group).

*laglaizei* Buysson. Oriental: Indonesia.

*laglaizei* Buysson 1898b:542. Holotype female; Indonesia: Moluccas, Ternate (PARIS). (*smaragdula* group).\*

*lama* Mocsáry. Palaearctic: Tibet.



*lama* Mocsáry 1914:45. Lectotype male (desig. Bohart herein); Tibet: Gyantse (LONDON). (*ignita* group).\*

*lamellata* Mocsáry. Oriental: Philippines, Malaysia.

*lamellata* Mocsáry 1914:63. Holotype female; Philippines: Luzon, Los Banos (BUDAPEST). (*smaragdula* group).\*

*laminata* Mocsáry. Afrotropical: Tanzania and Gambia to South Africa.

*laminata* Mocsáry 1902b:568. Lectotype female (not male) (desig. Bohart 1986b); South Africa: Sunday River (BUDAPEST). (*wahlbergi* group).\*

*windhoeckensis* (Bischoff) 1910:487. (*Hexachrysis*.) Syntype females; Namibia: Windhoeck (BERLIN). N. synonymy.\*

*aestuans* Mocsáry 1913a:37. Holotype female; South Africa ('Africa merid.') (BUDAPEST). N. synonymy.\*

*laminifera* (Bischoff). Nearctic: e USA, Mexico.

*laminifera* (Bischoff) 1910:460. (*Tetrachrysis*). Holotype female; USA: Texas, Dallas (BERLIN). (*nisseri* group).\*

*palifera* (Bischoff) 1910:461. (*Tetrachrysis*). Holotype male; Mexico: Tepic, Hacienda el Cora (BERLIN). N. synonymy.\*

*lanata* Mocsáry. Palaearctic: s USSR.

*lanata* Mocsáry 1912a:405. Holotype male (not female); USSR: 'Transcaspia', Ispayran (BUDAPEST). (*ignita* group).\*

*lanceolata* Linsenmaier. Palaearctic: w USSR, Rumania.

*lanceolata* Linsenmaier 1959a:121. Holotype female; USSR: 'Russia' (LUZERN). (*succincta-leachii* group).

*lateralis* Dahlbom. Palaearctic: Greece.

*lateralis* Dahlbom 1845:10. Holotype female; Greece: Rhodes Isl. (STOCKHOLM). (*comparata-scutellaris* group).

*laticlypeata* Edney. Afrotropical: Zimbabwe, South Africa.

*laticlypeata* Edney 1954a:571. Holotype female; Zimbabwe: Guzi Forest (CAPE TOWN). (*maindroni* group).\*

*latifasciata* Edney. Afrotropical: Zambia.

*latifasciata* Edney 1962:867. Syntype male, female; Zambia: Abercorn (CAPE TOWN). (*smaragdula* group).\*

*latigena* Mocsáry. Afrotropical: South Africa, Cameroon.

*latigena* Mocsáry 1902b:552. Holotype female; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM). (*maindroni* group).\*

*latipyga* Edney. Afrotropical: South Africa.

*latipyga* Edney 1952:422. Holotype male; South Africa: Cape Prov., Willowmore

(PRETORIA-TM). (*cuprata* group).\*

*latreillei* Mocsáry. Afrotropical: Zimbabwe.

*latreillei* Mocsáry 1912a:400. Holotype female; Zimbabwe: Sebakwe (CAPE TOWN). (*ignita* group).\*

*lauta* Cresson. Nearctic: central USA, Mexico.

*lauta* Cresson 1865b:310. Holotype female; USA: Colorado, Boulder (PHILADELPHIA). (*comparata-gibba* group).\*

*prasina* Cresson 1865b:310. Holotype male (not female); USA: Colorado (PHILADELPHIA). Nec Klug 1845.\*

*chlorophana* Mocsáry 1887a:16. Repl. name for *prasinus* Cresson.

*clypeata* Mocsáry 1889:393. Holotype male; Mexico: Chapultepec (VIENNA).\*

*parthenope* Mocsáry 1889:394. Holotype male; Mexico (GENEVA). N. synonymy.

*falsifica* Buysson 1891:38. Lectotype male (desig. Bohart herein); Mexico (PARIS).\*

*leachii* Shuckard. Palaearctic: Europe (widespread), Turkey, Middle East.

*leachii* Shuckard 1836:168. Type ?; England (lost ?). (*leachii-succincta* group).

*atrata* (Trautmann) 1927:133. (*Monochrysis leachii* var.). Type ?; Hungary (BERLIN). Nec Bischoff 1910.

*refrigerata* Linsenmaier 1959a:121. Holotype female; Jordan (LUZERN). N. synonymy.\*\*

*lepida* Mocsáry. Palaearctic: sw USSR.

*lepida* Mocsáry 1889:278. Holotype female; Armenian SSR: Yerevan (KRAKOW ?). (*elegans* group).\*\*

*boratiana* Semenov 1967:153. Holotype female; Armenian SSR: Ordubad (LENINGRAD). N. synonymy.\*

*leptopocila* Semenov. Palaearctic: Yugoslavia.

*leptopocila* Semenov 1892a:88. Holotype female (not male); Yugoslavia: Montenegro (LENINGRAD). (*comparata-scutellaris* group).\*

*lermontovi* Semenov. Palaearctic: Iraq.

*lermontovi* Semenov 1967:175. Holotype female; Iraq: Mossul (LENINGRAD). (*cerastes* group).\*

*leskii* Gmelin.

*leskii* Gmelin 1790:2747. Type ?; Europe (destroyed). Unknown species.

*lesnei* Buysson. Afrotropical: Tanzania.

*lesnei* Buysson 1898b:537. Holotype male; Tanzania: Mpala (PARIS). (*meadowaldoi* group).\*

*leuconoe* Semenov. Palaearctic: s USSR.

*leuconoe* Semenov 1967:176. Holotype male; Turkmen SSR: Pereval Station (LENINGRAD). (*comparata-gibba* group).\*

*levioris* Edney. Afrotropical: South Africa.

*levioris* Edney 1952:423. Holotype female; South Africa: Cape Prov., Matjesfontein (LONDON). (*capitalis* group).\*

*lincea* Fabricius. Afrotropical, Palaearctic (North Africa), Oriental, Australian.

*lincea* Fabricius 1775:367. Holotype ?; Sierra Leone (Drury coll., lost ?). (*lincea* group).

*lyncea* of authors, incorrect emendation.

*armata* (Lepeletier) 1806:127. (*Pyria*). Type ?; Egypt (Mus. ?).

*reichei* (Spinola) 1838:448. (*Pyria*). South Africa: Cape Prov. (TURIN ?).

*vomerina* Costa 1864:67. Holotype male; India (NAPLES ?).

*violacea* (Smith) 1874b:465. (*Pyria*). Type ?; Australia (Mus. ?). Nec Schrank 1802.

*proteus* (Smith) 1874b:465. (*Pyria*). Syntypes; Australia (Mus. ?).

*midas* Buysson 1891:46. Holotype female; Sierra Leone (PARIS).

*papuana* Mocsáry 1899:493. (*lyncea* var.). Lectotype male (desig. Bohart herein); New Guinea: Stephansort (BUDAPEST).\*

*longicollis* Mocsáry. Afrotropical: South Africa, Basutoland.

*longicollis* Mocsáry 1902b:566. Lectotype female (desig. Bohart 1986b); South Africa: Cape Prov., Sunday River (BUDAPEST). (*longicollis* group).\*

*obscuriventris* Mocsáry 1914:67. Holotype male; Basutoland (LONDON). N. synonymy.\*

*longidens* Mocsáry. Palaearctic: Ethiopia.

*longidens* Mocsáry 1912a:386. Holotype female; Ethiopia: Eritrea, Asmara (BUDAPEST). (*alternans* group).\*

*longigena* Mocsáry. Afrotropical: Nigeria and Zaire to South Africa.

*longigena* Mocsáry 1889:357. Holotype female; South Africa: Cape Prov. (VIENNA). (*maindroni* group).

*bucculenta* Mocsáry 1902b:549. Lectotype female (desig. Bohart herein); South Africa: Cape Prov., Algoa Bay (PRETORIA-TM). N. synonymy.\*

*gazella* Mocsáry 1904a:407. Lectotype female (desig. Bohart 1986b); South Africa: Cape Prov., Willowmore (BUDAPEST). N. synonymy.\*

*hostilis* Mocsáry 1914:30. Holotype female; n. Nigeria: Shonga (LONDON). N. synonymy.\*

*longirostris* Gribodo. Neotropical: Brazil.

*longirostris* Gribodo 1879:334. Holotype female; Brazil: Minas Gerais (COPENHAGEN). (*comparata-gibba* group).\*

*longissima* Buysson. Palaearctic: China.

*longissima* Buysson 1898b:529. Lectotype female (desig. Bohart herein); China: Kiang-Si (PARIS).\*

*longula* Abeille. Palaearctic: Eurasia, North Africa.

*longula* Abeille 1879:74. (*ignita* var.). Lectotype female (desig. Morgan 1984); Germany: Frankfurt (PARIS). (*ignita* group).\*

- nipponica* Linsenmaier 1951:78. (*ignita* var.). Syntypes; Japan (LUZERN, PARIS).
- subcoriacea* Linsenmaier 1959a:160. (*longula* ssp.). Holotype female; Finland: Krykstatt (LUZERN).
- aeneopaca* Linsenmaier 1959a:160. (*longula* ssp.). Holotype female; USSR: 'Transcaspia' (LUZERN).
- sublongula* Linsenmaier 1951:76. (*longula* var.). Holotype female; Switzerland: Wallis (LUZERN).
- atlantea* Linsenmaier 1968:100. (*longula* ssp.). Holotype female; Morocco: Mt. Atlas (LUZERN).
- nipponicola* Linsenmaier 1968:100. Repl. name for *nipponica* Linsenmaier 1951.
- lucens* Semenov. Palaearctic: s USSR.
- lucens* Semenov 1967:176. Holotype male; Kazakh SSR: Balamurun (LENINGRAD). (*pal-lidicornis* group).\*
- lucida* Linsenmaier. Palaearctic (Alpes): Switzerland, Austria, Italy.
- lucida* Linsenmaier 1951:51. (*germari* var.). Syntype females; Switzerland: Wallis (LUZERN). (*succinta* s.s. group).
- lucifera* Bohart. Nearctic: w USA.
- lucifera* Bohart 1982:123. Holotype male; USA: California, Los Angeles Co., Tanbark Flat (DAVIS). (*pattoni* group).\*
- lucilla* Balthasar. Palaearctic: Jordan.
- lucilla* Balthasar 1953:259. Holotype female; Jordan: Wadi el Kelt (PRAGUE). (*maculicornis* group).\*
- lusitanica* (Bischoff). Palaearctic: Portugal.
- lusitanica* (Bischoff) 1910:480. (*Tetrachrysis*). Holotype female; Portugal: Lusitania (BERLIN). (*ignita* group).\*
- sculpturata* Mocsáry 1912b:589 (*ignita* var.). Holotype female; Portugal (BUDAPEST). N. synonymy.\*
- macrodon* Mocsáry. Afrotropical: Kenya, Mozambique, South Africa, Egypt (?).
- macrodon* Mocsáry 1893:234. Holotype male; 'se Africa' (HAMBURG, destroyed). Neotype female (desig. Bohart herein); South Africa: Natal Prov., Ndumu Res., R. M. Bohart (DAVIS). (*wahlbergi* group).\*
- andreana* Buysson (In André) 1896:660. Holotype male; Egypt: Cairo (PARIS).\*
- loricata* Edney 1954b:647. Lectotype male (desig. Bohart herein); Zimbabwe: Bindura (CAPE TOWN). N. synonymy.\*
- macrognatha* Mocsáry. Afrotropical: South Africa, Namibia.
- macrognatha* Mocsáry 1902b:553. Holotype male; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM). (*maindroni* group).\*
- macula* Bohart. Afrotropical: South Africa.



*maculata* Mocsáry 1890:58. Holotype male; South Africa: Cape Prov. (BUDAPEST ?). Nec Fabricius 1798.

*macula* Bohart. N. repl. name for *maculata* Mocsáry 1890.

*maculicornis* Klug. Palaearctic: North Africa, Middle East, s USSR.

*maculicornis* Klug 1845:Table 45 Fig. 6. Type ?; Egypt: Alexandria (BERLIN ?). (*maculicornis* group).

*murgrabi* Radoszkowski 1891:196. Syntypes; Tadzhik SSR: Mourgab (KRAKOW). N. synonymy.\*

*murgabi* Radoszkowski 1893a:81. Invalid emendation of *murgrabi* Radoszkowski 1891.

*jordana* (Trautmann) 1926a:10. (*Tetrachrysis maculicornis* var.). Holotype male; Jordan: Jericho (BERLIN).

*defoveolata* Balthasar 1953:239. Holotype female; Jordan: Wadi el Kelt (PRAGUE).\*\*

*polyhymnia* Balthasar 1953:240. (*defoveolata* ab.). Holotype female; Jordan: Wadi el Kelt (PRAGUE). Invalid name.

*maculigera* Mocsáry. Oriental: Philippines.

*maculigera* Mocsáry 1914:47. Holotype male (headless); Philippines: Luzon, Los Banos (BUDAPEST).\*

*madecassa* Mocsáry. Afrotropical: Madagascar.

*madecassa* Mocsáry 1908a:263. Holotype male; Madagascar (BUDAPEST). (*aestiva* group).\*

*maderi* Linsenmaier. Palaearctic: Yugoslavia, Greece.

*maderi* Linsenmaier 1959a:122. Holotype male; Yugoslavia: Dalmatia, Krk Isl. (LUZERN). (*aestiva* group).\*\*

*magnitudina* Linsenmaier. Palaearctic: s Spain, Morocco.

*magnitudina* Linsenmaier 1959a:133. Holotype female; Spain: Ronda (LUZERN). (*viridula* group).

*maharadsha* Mocsáry. Oriental: Burma.

*maharadsha* Mocsáry 1913a:21. Holotype male; Burma: Tenasserim (BUDAPEST). (*oculata* group).\*

*maindroni* Buysson. Afrotropical: Somalia and Congo to South Africa.

*maindroni* Buysson 1898b:526. Holotype female; Somalia: Obock (PARIS). (*maindroni* group).\*

*malachitica* Dahlbom. Afrotropical: Togo and Zaire to South Africa.

*malachitica* Dahlbom 1854:335. Lectotype female (desig. Bohart herein); South Africa: Cape Prov. (COPENHAGEN). (*smaragdula* group).\*

*togoensis* (Bischoff) 1910:489. (*Hexachrysis*). Holotype male (not female); Togo: Bismarckburg (BERLIN).\*

*sjoestedti* (Cameron) 1910b:297. (*Hexachrysis*). Holotype female; Tanzania: Mt. Kilimanjaro (STOCKHOLM). N. synonymy.\*

*malayana* Tsuneki. Oriental: Malaysia.

*malayana* Tsuneki 1963c:99. Holotype female; Malaysia: Parit Buntar (TSUKUBA).

*mandibularis* Buysson. Afrotropical: Kenya, Tanzania.

*mandibularis* Buysson 1901:101. Holotype female; Tanzania: 'Waboniland' (VIENNA). (*delicatula* group).\*

*mane* Semenov. Palaearctic: Mongolia.

*mane* Semenov 1912:192. Lectotype male (desig. Bohart herein); Mongolia: Gan-su, Sinin (Sining-Fu) (LENINGRAD). (*ignita* group).\*

*manicata* Dahlbom. Palaearctic: Greece, Middle East, s USSR, North Africa.

*manicata* Dahlbom 1854:276. Syntype male, female; Greece: Rhodes Isl. (BERLIN). (*pal-lidicornis* group).

*chloris* Mocsáry 1889:480. Holotype male; Algeria (GENEVA).

*matrona* Semenov 1954a:118. Lectotype male (desig. Bohart herein); Kazakh SSR: Karatau, Regar (LENINGRAD). N. synonymy.\*

*maracandensis* Radoszkowski. Palaearctic: s USSR.

*maracandensis* Radoszkowski 1877:14. Lectotype male (not female) (desig. Bohart herein); Uzbek SSR: Sarafschan (MOSCOW). (*comparata-scutellaris* group).\*

*simulatrix* Radoszkowski 1891:185 (*maracandensis* var.). Type ?; Turkmen SSR: Ashkabad (KRAKOW ?).

*nova* Radoszkowski 1891:185 (*consobrina* var.). Type ?; Turkmen SSR: Ashkabad (KRAKOW ?).

*marani* Balthasar. Palaearctic: Middle East.

*marani* Balthasar 1953:217. Holotype female; Israel: Jerusalem (PRAGUE). (*succincta* group).\*\*

*centropunctata* Linsenmaier 1968:66. Holotype female; Turkey: Kayseri, Yilauli Dagli (LUZERN).

*cupricolor* Linsenmaier 1987:148. (*marani* ssp.). Holotype female; Morocco: Mt. Atlas (LUZERN).

*marginata* Mocsáry. Palaearctic: se Europe, Turkey, Bulgaria, Middle East, s USSR.

*marginata* Mocsáry 1889:451. Holotype female; USSR: 'Turkestan' (KRAKOW ?). (*comparata* s.s. group).

*aliunda* Linsenmaier 1959b:239. (*marginata* ssp.). Holotype male; Yugoslavia: Krk Isl. (Dalmatia) (LUZERN).

*martinella* Buysson. Palaearctic: Greece, Iran, Afghanistan, Middle East, s USSR.

*martinella* Buysson 1900:142. Holotype female; Iran: Teheran (PARIS). (*aestiva* group).\*

*klapperichi* Balthasar 1957:148. Holotype female; Afghanistan: Schau (PRAGUE).

*patراسiensis* Linsenmaier 1968:74. (*martinella* ssp.). Holotype male; Greece: Patras (LUZERN).

- solox* Semenov 1954a:132. (*martinella* ssp.). Holotype female; Tadzhik SSR: Iol (LENINGRAD).\*
- satunini* Semenov 1967:179. Holotype male; Armenian SSR: Yelisavetpol, Kirovabad (LENINGRAD).\*
- matutina* Semenov. Palaearctic: China.
- matutina* Semenov 1967:179. Holotype female; China: Hansiu Prov. (LENINGRAD). (*ignita* group).\*
- mauritanica* Trautmann. Palaearctic: Tunisia.
- mauritanica* Trautmann 1927:153. (*leachii* var.). Syntype males; Tunisia: Tunis (BERLIN, ZURICH). (*leachii* group).
- mauritii* Buysson. Palaearctic: Algeria.
- mauritii* Buysson (In André) 1896:731. Holotype female; Algeria: Laghouat (PARIS).\*
- mavromoustakisi* Trautmann. Palaearctic: Cyprus.
- mavromoustakisi* Trautmann 1929:156. (*succincta* var.). Holotype female; Cyprus: Limasol (BERLIN). (*succincta* s.s. group).
- meadewaldoi* Mocsáry. Afrotropical: Zambia, Zaire, Malawi.
- meadewaldoi* Mocsáry 1914:62. Holotype female; Zambia (LONDON). (*meadewaldoi* group).\*
- barbatula* Edney 1962:868. Lectotype male (desig. Bohart herein); Zambia: Mukapa (CAPE TOWN). N. synonymy.\*
- medea* Balthasar. Palaearctic: Middle East.
- medea* Balthasar 1953:264. Holotype male; Israel: Jerusalem (PRAGUE). (*cerastes* group).\*
- mediata* Linsenmaier. Palaearctic: Eurasia, North Africa.
- mediata* Linsenmaier 1951:76. (*ignita* var.). Syntypes; central Europe (LUZERN). (*ignita* group).
- clarinicolis* Linsenmaier 1951:78. (*ignita* var.). Syntypes; Europe, North Africa (LUZERN).
- deleta* Linsenmaier 1951:78. (*mediata* var.). Holotype female; Japan (LUZERN).\*\*
- mediadentata* Linsenmaier 1951:75. (*ignita* var.). Syntypes; Europe (LUZERN).
- berberiana* Linsenmaier 1959a:154. (*mediata* ssp.). Holotype female; Tunisia (LUZERN).
- fenniensis* Linsenmaier 1959a:154. (*mediata* ssp.). Holotype female; Finland (LUZERN).
- scintillans* Valkeila 1971:85. Holotype female; Finland: Vanaja (HELSINKI). N. synonymy.\*
- mediocris* Dahlbom. Afrotropical: widespread.
- mediocris* Dahlbom 1845:14. Holotype female; Guinea (LUND). (*smaragdula* group).\*
- virescens* Brullé 1846:27. Lectotype female (desig. Bohart herein); Senegal (PARIS). N. synonymy.\*
- modica* Dahlbom 1850:140. Lectotype female (desig. Bohart herein); South Africa: Natal Prov., 'Port Natal' (STOCKHOLM). N. synonymy.\*
- oliveirii* Radoszkowski 1881b:219. Type ?; Angola: Welwitsch (KRAKOW ?). N. synonymy.

- dewitzi* Mocsáry 1889:556. Holotype female; 'West Africa: Chinchoxo' (BERLIN). N. synonymy.\*
- therates* Mocsáry 1889:555. Holotype female; Senegal (KRAKOW ?). N. synonymy.
- violacea* (Bischoff) 1910:487. (*Hexachrysis virescens* var.). Holotype female; South Africa: Cape Prov. (BERLIN). Nec Schrank 1802. N. synonymy.\*
- opacocoerulea* (Bischoff) 1910:487. (*Hexachrysis virescens* var.). Holotype female; Tanzania (BERLIN). N. synonymy.\*
- dittrichi* (Bischoff) 1910:488. (*Hexachrysis*). Holotype male (not female); South Africa: Cape Prov., Delagoa Bay (BERLIN). N. synonymy.
- menyharti* Mocsáry 1913a:18. Holotype female; Mozambique: Boroma (BUDAPEST). N. synonymy.\*
- megacephala* Dahlbom. Palaearctic: Egypt.
- megacephala* Dahlbom 1854:222. Holotype female; Egypt (COPENHAGEN). (*ebrenbergi* group).
- melanophrys* Mocsáry. Palaearctic: Algeria.
- melanophrys* Mocsáry 1889:303. Holotype female; Algeria (BERLIN). (*varidens-gracillima* group).
- melpomene* Balthasar. Palaearctic: Middle East.
- melpomene* Balthasar 1953:196. Holotype female (not male); Israel: Jerusalem (PRAGUE).\*
- merceti* (Trautmann). Palaearctic: Spain, Portugal.
- merceti* (Trautmann) 1926a:10. (*Tetrachrysis succincta* var.). Type ?; Spain: Castile (BERLIN ?). (*succincta* s.s. group).
- mesochlora* Mocsáry. Palaearctic: Greece.
- mesochlora* Mocsáry 1893:216. Holotype male; Greece: Rhodes Isl. (HAMBURG, destroyed). (*elegans* group).
- mesocyanea* Mocsáry. Afrotropical: Madagascar.
- mesocyanea* Mocsáry 1902a:346. Holotype female; Madagascar (BUDAPEST). (*smaragdula* group).\*
- meta* Aaron. Nearctic: n USA, s Canada.
- meta* Aaron 1885:234. Lectotype male (desig. Cresson 1928); USA: Montana (PHILADELPHIA). (*succincta* s.s. group).\*
- mezadana* Linsenmaier. Palaearctic: Middle East.
- mezadana* Linsenmaier 1968:64. Holotype female; Jordan: Mezada (LUZERN). (*succincta* s.s. group).
- millenaris* Mocsáry. Palaearctic: se Europe, Turkey.
- millenaris* Mocsáry 1897:645. Lectotype female (desig. Móczár 1965); Hungary: Budapest (BUDAPEST). (*millenaris* group).\*



*mina* Bohart. Palaearctic: s USSR.

*minuta* Mocsáry 1909b:3. Holotype male; Kazakh SSR: Syr-Daria, Baigakum (BUDAPEST). (*maculicornis* group). Nec Mocsáry 1889.\*

*mina* Bohart. N. repl. name for *minuta* Mocsáry 1909b.

*minutissima* Radoszkowski. Palaearctic: North Africa, Middle East.

*minutissima* Radoszkowski 1876b:147. Holotype female; Egypt (KRAKOW ?). (*succincta* s.s. group).

*aegyptiaca* Buysson 1908a:60. Lectotype female (desig. Bohart herein); Egypt: Cairo, Wadi Hof (PARIS).\*

*aphrodite* Balthasar 1953:229. Holotype male; Jordan: Wadi el Kelt (PRAGUE). (*succincta* s.s. group).

*mionii* Guérin. Afrotropical: Senegal to South Africa.

*mionii* Guérin 1842:149. Lectotype female (desig. Bohart herein); Senegal (LUND). (*comparata-scutellaris* group).\*

*oberthuri* Buysson 1898b:533. Holotype female; South Africa: Natal Prov. (PARIS). N. synonymy.\*

*concinna* Mocsáry 1902b:560. Type ?; South Africa (Mus. ?). Nec *lusca concinna* Gribodo 1884. N. synonymy.\*

*aulica* Mocsáry 1902b:561. Holotype female; South Africa: Cape Prov., Sunday River (PRETORIA-TM). N. synonymy.\*

*eusoma* Mocsáry 1904:409. Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*

*grata* Mocsáry 1904:412. Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*

*mir* Mocsáry. Oriental: India.

*mir* Mocsáry 1912b:556. Holotype male; India ('Orientalis') (BUDAPEST).\*

*mirabilis* Radoszkowski. Palaearctic: s USSR, Greece, Turkey.

*mirabilis* Radoszkowski 1876a:106. Holotype; USSR: 'Caucasus' (KRAKOW ?). (*facialis* group).

*mirifica* Balthasar. Palaearctic: Middle East.

*mirifica* Balthasar 1953:264. Holotype male; Jordan: Wadi el Kelt (PRAGUE). (*exsecata* group).\*\*

*misella* Buysson. Palaearctic: Middle East, Turkey, Greece

*misella* Buysson 1900:152. Holotype male (no abdomen); Jordan: Jericho (PARIS). (*taczanowskii* group).\*

*mixta* Dahlbom. Palaearctic: s. Europe.

*mixta* Dahlbom 1854:167. Holotype; Italy: Liguria (BERLIN). (*aestiva* group).

*mlokošewitzi* Radoszkowski. Palaearctic: s USSR.

- mlokosewitszi* Radoszkowski 1889:13. Holotype female; USSR: 'Caucasus' (KRAKOW ?).
- mochii* (Zimmermann). Palaearctic: North Africa, Middle East.
- mochii* (Zimmermann) 1938:2. (*Gonochrysis*). Syntype females; Egypt: Borgash (VIENNA, CAIRO). (*subsinnuata* group).
- samariae* (Zimmermann) 1938:4. (*Gonochrysis mochii* ssp.). Holotype female; Israel: Nablus (Samaria) (BERLIN).
- moquersyi* Buysson. Palaearctic: France.
- moquersyi* Buysson 1887b:178. Holotype male; France: Montpellier (PARIS). (*succincta* s.s. group).\*
- mocsariana* Semenov. Palaearctic: s USSR.
- semenovi* Mocsáry 1909:7. Holotype male; Kazakh SSR: Syr-Daria, Karatau Mountains (BUDAPEST). Nec Radoszkowski 1891.\*
- mocsariana* Semenov 1912:197. Repl. name for *semenovi* Mocsáry 1909b. (*smaragdula* group).
- mocsaryi* Radoszkowski. Palaearctic: Mongolia.
- mocsaryi* Radoszkowski 1889:29. Holotype female; Mongolia: Kobden (KRAKOW). (*comparata*-*scutellaris* group).\*
- modesta* Mocsáry. Afrotropical: South Africa.
- modesta* Mocsáry 1904:404. Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*exsecata* group).\*
- moesta* Semenov. Palaearctic: s USSR.
- moesta* Semenov 1967:172. Holotype female; Kazakh SSR: Baigakum (LENINGRAD). (*ignita* group).\*
- mongoliana* Bohart. Palaearctic: Mongolia
- mongolica* Semenov 1967:178. Holotype female; Mongolia: Transbaikalia, Ingoda River (LENINGRAD). Nec Mocsáry 1914.\*
- mongoliana* Bohart. N. repl. name for *mongolica* Semenov 1967. (*succincta* s.s. group).
- monochroa* Mocsáry. Palaearctic: Algeria.
- monochroa* Mocsáry 1889:554. Holotype female; Algeria (GENEVA). (*smaragdula* group).
- montana* Aaron. Nearctic: central and w USA.
- montana* Aaron 1885:234. Lectotype female (desig. Cresson 1928); USA: Montana (PHILADELPHIA). (*succincta* group).\*
- hirsuta* Aaron 1885:235. Lectotype male (desig. Cresson 1928); USA: Utah (PHILADELPHIA). Nec Gerstaecker 1869.\*
- aaroni* Mocsáry 1889:386. Repl. name for *hirsuta* Aaron.
- montivaga* Mocsáry. Palaearctic: s USSR.
- montivaga* Mocsáry 1912a:409. Holotype male; USSR: 'Turkestan', Mt. Alexander

(BUDAPEST). (*cerastes* group).\*

*hyacinthina* Mocsáry 1912a:410. Holotype male; USSR: 'Turkestan': Mt. Alexander (BUDAPEST).\*

*moorei* Bohart. Nearctic: w USA.

*moorei* Bohart 1982:131. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS). (*ignita* group).\*

*moriceana* Buysson. Palaearctic: Algeria.

*moriceana* Buysson 1900:140. Lectotype male (desig. Bohart herein); Algeria (OXFORD). (*bihamata* group).\*

*mosulensis* Linsenmaier. Palaearctic: Iraq.

*mosulensis* Linsenmaier 1968:59. Holotype female; Iraq: Mosul (LUZERN). (*pulchella* group).

*mouattii* Guérin. Afrotropical: Madagascar.

*mouattii* Guérin 1842:145. Holotype female; Madagascar (GENOA). (*smaragdula* group).

*seyrigi* Zimmermann 1961b:316. Holotype female; Madagascar: Bekily (PARIS).\*

*munita* Buysson. Afrotropical: Ethiopia to South Africa.

*munita* Buysson 1898a:143. Holotype male; South Africa: Natal Prov. ('Zululand') (PARIS). (*splendens* group).\*

*crenulata* Mocsáry 1902b:569. Holotype female; South Africa (PRETORIA-TM). N. synonymy.\*

*bicincta* (Bischoff) 1910:488. Holotype female; South Africa: Cape Prov. (BERLIN). N. synonymy.\*

*musa* Semenov. Palaearctic: Iran, nw India.

*musa* Semenov 1954a:133. Lectotype male (desig. Bohart herein); Iran: Megas (LENINGRAD). (*smaragdula* group).\*

*mutabilis* Buysson. Palaearctic: Turkey, Middle East, s USSR.

*mutabilis* Buysson 1887b:194. Lectotype male (desig. Bohart herein); Israel: Tiberias ('Tiberiade') (PARIS). (*cerastes* group).\*

*gertabi* Radoszkowski 1891:189. Syntypes; Turkmen SSR: Ashkabad (KRAKOW). N. synonymy.\*

*erato* Balthasar 1953:242. Holotype female; Jordan: Wadi el Kelt (PRAGUE). N. synonymy.\*

*byrcana* Semenov 1967:167. Holotype female; Iran: Astrabad (LENINGRAD). N. synonymy.\*

*transoxiana* Semenov 1967:175. (*mutabilis* ssp.). Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD).\*

*mutata* Mocsáry. Afrotropical: South Africa.

*cuprea* Brullé 1846:40. Holotype female; South Africa: Cape Prov. (TURIN). Nec Rossi 1790.

- mutata* Mocsáry 1882:50. Repl. name for *cuprea* Brullé 1846.
- mutincisa* Linsenmaier. Palaearctic: Turkey.  
*mutincisa* Linsenmaier 1968:86. Holotype male; Turkey: Mut (LUZERN). (*rufitarsis* group).\*\*
- mysta* Buysson. Palaearctic: Middle East, s USSR, Turkey, Libya.  
*mysta* Buysson 1900:152. Holotype female; Jordan: Jericho (PARIS). (*succincta* s.s. group).\*  
*kathederi* Buysson 1904:269. Holotype male; Turkey (FRANKFURT).\*  
*igorigana* Semenov 1967:155. Holotype female; Kazakh SSR: Karatau foothills (LENINGRAD). N. synonymy.\*
- mysticalis* Linsenmaier. Palaearctic: s Europe, North Africa.  
*mysticalis* Linsenmaier 1959a:165. Holotype female; Spain: Zamora, Ribadelago (LUZERN). (*inaequalis* group).
- namibica* Bohart. Afrotropical: Namibia.  
*namibica* Bohart 1988d:285. Holotype male; Namibia: Namib Desert Park, Gobabeb (DAVIS). (*comparata*-*scutellaris* group).\*
- nasuta* Mocsáry. Afrotropical: Zambia, Tanzania, Gambia, Zimbabwe, South Africa.  
*nasuta* Mocsáry 1902b:556. Holotype male; Zimbabwe: Salisbury (PRETORIA-TM). (*comparata*-*gibba* group).\*  
*stilbiceps* (Bischoff) 1910:446. (*Eurychrysis*). Holotype male; Tanzania: Umuamba-Umabila (BERLIN). N. synonymy.\*  
*rostrata* (Edney) 1956b:416. (*Pseudohexachrysis*). Lectotype female (desig. Bohart herein); South Africa: Transvaal Prov. (CAPE TOWN). N. synonymy.\*  
*rostrata* Edney 1962:862. Lectotype female (desig. Bohart herein); Zambia: Abercorn (CAPE TOWN). N. synonymy. Nec Edney 1956b.\*
- neaera* Semenov. Palaearctic: Turkey.  
*neaera* Semenov 1967:171. Holotype male; Turkey: Bairam-Ali (LENINGRAD). (*taczanovskii* group).\*
- neobule* Semenov. Palaearctic: s USSR.  
*neobule* Semenov 1954a:131. Holotype female; Kazakh SSR: Balamurun, Karatau (LENINGRAD). (*varidens* group ?).\*
- nevelskiana* Semenov. Palaearctic: ne USSR.  
*nevelskiana* Semenov 1967:179. Holotype female; USSR: 'Primorski Territory, Peschanoye' (LENINGRAD). (*ignita* group).\*
- nidicola* (Bischoff). Afrotropical: Tanzania, Nigeria.  
*nidicola* (Bischoff) 1910:466. (*Tetrachrysis*). Lectotype female (desig. Bohart herein); Tanzania: Amani (BERLIN). (*ignita* group).\*



*nigricincta* (Bischoff). Palaearctic: nw China

*nigricincta* (Bischoff) 1910:475. (*Tetrachrysis*). Holotype male; China: Sinkiang, Pjalma-Chotan (BERLIN).

*nigropilosa* Tsuneki. Oriental: Taiwan.

*nigropilosa* Tsuneki 1970b:16. Holotype female; Taiwan: Chiai Prov., Fenchifu (TSUKUBA).

*nila* Bingham. Oriental: India.

*nila* Bingham 1903:441. Holotype male; India: Deesa (LONDON).\*

*nilensis* Linsenmaier. Palaearctic: Egypt.

*cyanea* Buysson 1908a:49. (*leachii* var.). Syntype females; Egypt: Wadi Hoff (Mus. ?). Nec Villers 1789.

*nilensis* Linsenmaier 1959a:121. Repl. name for *leachii cyanea* Buysson 1908a. (*succincta-leachii* group).

*niliaca* Linsenmaier. Palaearctic: Egypt.

*niliaca* Linsenmaier 1968:73. Holotype female; Egypt: Cairo (LUZERN). (*succincta-leachii* group).

*niponica* Uchida. Palaearctic: Japan.

*japonica* Mocsáry 1889:490. Lectotype male (desig. Bohart 1986b); Japan (BUDAPEST). Nec Cameron 1888.\*

*niponica* Uchida 1933:4. Repl. name for *japonica* Mocsáry 1889. (*ignita* group).

*japanensis* Linsenmaier 1951:78 (*ignita* var.). Holotype female; Japan (LUZERN).

*nisseri* Dahlbom. Neotropical: Colombia to Argentina.

*nisseri* Dahlbom 1845:14. Holotype male (not female); Colombia: Remedios (LUND). (*nisseri* group).\*

*nitidula* Fabricius. Nearctic: widespread.

*nitidula* Fabricius 1775:359. Lectotype female (headless) (desig. Bohart herein); 'America' (LONDON). (*ignita* group).\*

*coerulans* Fabricius 1804:172. Neotype female (desig. Bohart 1982); USA: North Carolina ('N. C.') (PHILADELPHIA). N. synonymy.\*

*servillei* Brullé 1846:37. Holotype female; USA: 'Les montagnes Rocheuses' (Serville Coll, lost?).

*bella* Cresson 1865b:312. Holotype female; USA: 'Colorado Territory' (PHILADELPHIA).\*

*nortoni* Aaron 1885:237. Lectotype male (desig. Cresson 1928); USA: Maine (PHILADELPHIA).\*

*angularis* Mocsáry 1889:366. Holotype female; Egypt (probably in error) (VIENNA).\*

*canadensis* Buysson 1891:37. Holotype female; Canada: Quebec (PARIS).\*

*conserta* Buysson 1891:37. Holotype female; USA: Texas (PARIS).\*

*nianula* Rohwer 1909:88. Holotype female; USA: Colorado (WASHINGTON).\*

*sejuncta* Mocsáry 1914:51. Lectotype female (desig. Bohart 1986b); USA: 'Missouri' (BUDAPEST).\*

- praticola* Mocsáry 1914:50. Lectotype female (desig. Bohart 1986b); USA: Texas, Fedor (BUDAPEST).\*
- nobirai* Tsuneki. Palaearctic: Japan (Bonin Isls.).
- nobirai* Tsuneki 1952:31. Holotype female; Japan: Bonin Isls., Chichi Jima Isl. (OSAKA).
- norsemanae* Bohart. Australian: Western Australia.
- norsemanae* Bohart 1985a:50. Holotype male; Australia: Western *Australia*, near Norseman (CANBERRA). (*impostor* group).\*
- notidana* Bohart. Australian: Australia (widespread).
- notidana* Bohart 1985a:50. Holotype male; Australia: New South Wales, Round Hill Reserve (CANBERRA). (*impostor* group).\*
- novella* Magretti. Palaearctic: Ethiopia.
- novella* Magretti 1895:170. Holotype male; Ethiopia (Gallaland) (GENOA).
- nox* Semenov. Palaearctic: Mongolia.
- nox* Semenov 1954a:128. Lectotype female (desig. Bohart herein); Mongolia: Yihe Bogdo, Peter the Great Range (LENINGRAD). (*facialis* group).\*
- nubica* Buysson. Palaearctic: Sudan.
- nubica* Buysson 1887b:197. Holotype female; Sudan: Nubia (PARIS). (*smaragdula* group).\*
- numerata* Mocsáry. Afrotropical: South Africa.
- numerata* Mocsáry 1902b:562. Holotype male; South Africa: Orange Free State, Reddersburg (PRETORIA-TM). (*cerastes* group).\*
- cyanops* Mocsáry 1904:410. Lectotype female (desig. Bohart herein); South Africa: Cape Prov., Willowmore (PRETORIA-TM).\*
- nursei* Bingham. Oriental: India.
- nursei* Bingham 1903:463. Holotype male; India: Deesa (LONDON). (*pallidicornis* group).\*
- oblita* Bohart. Oriental: India.
- orientalis* Dahlbom 1854:225. Holotype female; 'India orientalis' (COPENHAGEN). Nec Guérin 1842.
- obliterata* Mocsáry 1887a:15. Repl. name for *orientalis* Dahlbom 1854. Nec Abeille 1879.
- oblita* Bohart. N. repl. name for *obliterata* Mocsáry 1887a (*comparata*-*scutellaris* group).
- oblonga* Cresson. Nearctic: Cuba.
- oblonga* Cresson 1865a:106. Holotype female; Cuba (PHILADELPHIA). (*ignita* group).\*
- obscura* Smith. Oriental: Indonesia, Celebes.
- obscura* Smith 1860:67. Holotype female; Celebes: Makassar (OXFORD). (*smaragdula* group).\*
- obtusata* Mocsáry. Palaearctic: Ethiopia.

- obtusata* Mocsáry 1912a:384. Holotype male; Ethiopia: Eritrea, Asmara (BUDAPEST). (*comparata-gibba* group).\*
- femorata* Mocsáry 1912a:385. Holotype female; Ethiopia: Eritrea, Asmara (BUDAPEST). N. synonymy.\*
- obtusidens* Dufour and Perris. Palaearctic: central Europe, Turkey, s USSR.
- obtusidens* Dufour and Perris 1840:37. Holotype female; 'Landes' (PARIS). (*ignita* group).\*
- igniventer* Guérin 1842:148. Syntype male, female; Algeria (GENOA).
- kaufeli* Zimmermann 1944:85. Syntype males, females; Austria: Alpes (VIENNA).
- taurusiensis* Linsenmaier 1959a:162. Holotype male; (*obtusidens* ssp.) Turkey: Taurus (LUZERN).
- occidentalis* Mocsáry. Afrotropical: Gabon to South Africa.
- occidentalis* Mocsáry 1913a:17. Holotype male; Gabon (BUDAPEST). (*smaragdula* group).\*
- oculata* Fabricius. Oriental: India, Sri Lanka, Burma.
- oculata* Fabricius 1775:357. Type ?; e India (COPENHAGEN). (*oculata* group).
- siva* Mocsáry 1889:545. Holotype female; India: Bengal (BUDAPEST).\*
- sumptuosa* (Gribodo) 1884b:367. (*Pyria oculata* var.). Holotype female; Burma (GENOA). Nec Smith 1858.\*
- ognevi* Semenov. Palaearctic: s USSR.
- ognevi* Semenov 1967:166. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). (*maculicornis* group).\*
- olgae* Semenov. Palaearctic: s USSR.
- olgae* Semenov 1967:176. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). (*comparata-scutellaris* group).\*
- opaca* Gribodo. Afrotropical: South Africa.
- opaca* Gribodo 1879:331. Holotype female; 'Africa orientale' (GENOA). (*smaragdula* group).\*
- opacula* Buysson. Palaearctic: Egypt.
- opacula* Buysson 1898b:528. Holotype male (not female); Egypt: Cairo ('Le Caire') (PARIS).\*
- opulenta* Mocsáry. Palaearctic: Algeria.
- opulenta* Mocsáry 1889:500. Holotype male; Algeria: Setif (GENEVA). (*graelsii* group).
- oraria* Bohart. Nearctic: sw USA, nw Mexico (Baja California).
- oraria* Bohart 1962:370. Holotype male; USA: Arizona, Grand Canyon (KANSAS). (*smaragdula* group).\*
- ordinata* Buysson. Afrotropical: Congo.
- ordinata* Buysson 1893:252. Lectotype female (not male) (desig. Bohart herein); Congo (PARIS). (*smaragdula* group).\*
- oreadis* Bohart. Nearctic: e USA.

- oreadis* Bohart 1982:119. Holotype male; USA: Florida, Gainesville (DAVIS). (*oreadis* group).\*
- orientalis* Guérin. Oriental: India, Indonesia (Sumatra).  
*orientalis* Guérin 1842:146. Holotype male; Sumatra (GENOA). (*oculata* group).  
*duplomaculata* Linsenmaier 1968:123. (*stilboides* ssp). Holotype female; India: Deesa (LONDON). N. synonymy.\*
- ovidii* Semenov. Palaearctic: s USSR.  
*ovidii* Semenov 1967:177. Holotype female; Turkmen SSR: Kizyl-Arvat (LENINGRAD). (*maculicornis* group).\*
- oxyacantha* Mocsáry. Palaearctic: Ethiopia.  
*oxyacantha* Mocsáry 1913a:41. Holotype female; Ethiopia: Eritrea, Keren (BUDAPEST). (*oculata* group).\*
- oxygona* Mocsáry. Afrotropical: South Africa.  
*oxygona* Mocsáry 1890:60. Holotype female; South Africa; Cape Prov. (lost). Neotype female (desig. Bohart herein); South Africa: Cape Prov., van Rhynsdorp (PRETORIA-TM). (*oxygona* group).\*  
*natalensis* Mocsáry 1893:224. Holotype female; South Africa: 'Port Natal' (HAMBURG, destroyed).  
*carinata* (Bischoff) 1910:448. (*Pseudotetrachrysis*). Holotype male; South Africa: Cape Prov. ('Capland') (BERLIN). Nec Bloch 1799.\*
- pachysoma* Mocsáry. Afrotropical: Tanzania, Zimbabwe.  
*pachysoma* Mocsáry 1912a:399. Holotype female; Tanzania: Kigonsera (BUDAPEST). (*comparata-gibba* group).\*  
*robusta* (Bischoff) 1910:472. (*Tetrachrysis*). Holotype male; Tanzania: Iringa (BERLIN). Nec Mocsáry 1909b. N. synonymy.\*  
*mastersoni* Edney 1954a:563. Syntype females; Zimbabwe: Bindura (CAPE TOWN). N. synonymy.\*
- pachystoma* Mocsáry. Afrotropical: Kenya to South Africa.  
*pachystoma* Mocsáry 1902b:548. Holotype female; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM). (*delicatula* group).\*
- pallidicornis* Spinola. Palaearctic: North Africa, Middle East.  
*pallidicornis* Spinola 1838:451. Syntypes; Egypt (TURIN). (*pallidicornis* group).  
*armena* Dahlbom 1854:274. Holotype male; Armenian SSR (TURIN).
- palliditarsis* Spinola. Palaearctic: North Africa, Middle East, s USSR; Afrotropical: widespread.  
*palliditarsis* Spinola 1838:449. Holotype male; Egypt (TURIN). (*comparata-scutellaris* group).  
*diversa* Dahlbom 1845:13. Lectotype female (desig. Bohart herein); Egypt (STOCKHOLM). N. synonymy.



- cotesi* Buysson 1893:249. Lectotype male (desig. Bohart herein); India: Bangalore (PARIS). N. synonymy.\*
- scabiosa* Buysson 1904:262. Holotype female; Somalia: Djibouti (PARIS). N. synonymy.\*
- violascens* Mocsáry 1908b:517. Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*
- colonica* Mocsáry 1912a:391. Holotype male; Ethiopia: Eritrea (BUDAPEST). N. synonymy.\*
- adamantina* Mocsáry 1914:41. Holotype male; South Africa: Cape Prov., Kimberley (CAPE TOWN). N. synonymy.\*
- pandianii* Mantero. Afrotropical: Mali.
- pandianii* Mantero 1916:30. Lectotype female (desig. Bohart herein); Mali: Bolama (GENOA). (*smaragdula* group).\*
- paradisica* Bohart. Nearctic: USA (California).
- paradisica* Bohart 1982:106. Holotype male; USA: California, Nevada Co., Sagehen Creek (DAVIS). (*succincta* s.s. group).\*
- paraguayensis* (Bischoff). Neotropical: Peru, Paraguay, Argentina.
- paraguayensis* (Bischoff) 1910:478. (*Tetrachrysis*). Holotype male, Paraguay (BERLIN). (*intricans* group).\*
- baeri* Buysson 1903c:311. Holotype female; Argentina: Tucumán Prov., La Criolla (PARIS?). Nec Radoszkowski 1866. N. synonymy.\*
- spinicollis* Mocsáry 1912b:580. Lectotype male (desig. Bohart 1986b); Argentina: Salta (BUDAPEST). N. synonymy.\*
- parallela* Brullé. Oriental: widespread, India to Taiwan.
- parallela* Brullé 1846:29. Holotype female (not male); Indonesia: Timor Isl. (PARIS). (*smaragdula* group).\*
- feana* Mocsáry 1893:235. Holotype male; Burma ('Birma') (GENOA). N. synonymy.\*
- lepcha* Cameron 1902:206. Holotype female; India: Khasia Hills (OXFORD). N. synonymy.\*
- fukai* Rohwer 1911:478. Holotype female; Taiwan: Horisha (WASHINGTON). N. synonymy.\*
- assamensis* Mocsáry 1913a:24. Holotype female; India: Assam (BUDAPEST). N. synonymy.\*
- parkeri* Moore. Nearctic: w USA.
- parkeri* Moore 1966:1130. Holotype male; USA: Nevada, Washoe Co., Verdi (DAVIS). (*ignita* group).\*
- parthorum* Semenov. Palaearctic: Iran.
- parthorum* Semenov 1967:161. Holotype male (not female); Iran: Shakhруд (LENINGRAD). (*rufitarsis* group).\*
- parvimedia* (Linsenmaier). Australian: se Australia.
- parvimedia* (Linsenmaier) 1982:346. (*Hexachrysis*). Holotype female; Australia: Victoria, Sassafras (LONDON). (*smaragdula* group).\*

*parviocellaris* Linsenmaier. Palaearctic: Niger.

*parviocellaris* Linsenmaier 1968:65. Holotype female; Niger: Agadez (LONDON). (*succincta* s.s. group).\*

*patagonica* Mocsáry. Neotropical: Argentina, Mexico (Veracruz).

*patagonica* Mocsáry 1889:572. Holotype female (not male); Argentina: Patagonia (GENEVA). (*smaragdula* group).\*

*pattoni* Aaron. Nearctic: w and central USA, s central Canada.

*pattoni* Aaron 1885:235. Holotype female; USA: Colorado (PHILADELPHIA). (*pattoni* group).\*

*pellucidula* Aaron. Nearctic: widespread.

*pellucidula* Aaron 1885:235. Holotype female; USA: 'Virginia' (PHILADELPHIA). (*pellucidula* group).\*

*peninsularis* Buysson. Palaearctic: Spain, Portugal, Turkey.

*peninsularis* Buysson 1887b:182. Holotype female; Spain (PARIS ?). (*succincta* s.s. group).

*humilis* Buysson 1887b:174. Holotype male; Spain: Madrid (PARIS ?).

*turcica* (Buysson) 1908c:208. (*Gonochrysis peninsularis* var.). Holotype female; Turkey (PARIS ?).

*perexigua* Linsenmaier. Palaearctic: Spain, Portugal.

*perexigua* Linsenmaier 1959a:99. Holotype male; Portugal: Rezende (LUZERN). (*millenaris* group).

*perezi* Mocsáry. Palaearctic: se Europe, North Africa.

*perezi* Mocsáry 1889:461. Lectotype male (desig. Bohart 1986b); Algeria (BUDAPEST). (*graelisii* group).\*

*perfecta* Cameron. Palaearctic: India (Sikkim).

*perfecta* Cameron 1897a:1. Holotype male (?); India (LONDON). (*maculicornis* group).\*

*perplexa* Buysson. Australian: Australia (widespread), New Guinea.

*perplexa* Buysson 1898b:554. Lectotype male (desig. Bohart herein); New Guinea (PARIS). (*interceptor* group).\*

*persis* Semenov. Palaearctic: Iran.

*persis* Semenov 1967:166. Holotype male; Iran: Kizaabad (LENINGRAD). (*graelisii* group).\*

*perthensis* (Linsenmaier). Australian: w Australia.

*perthensis* (Linsenmaier) 1982:343. (*Hexachrysis*). Holotype female; Australia: Perth (LONDON). (*smaragdula* group).\*

*peruvica* Bohart. Neotropical: Peru, Ecuador.

*peruvica* Bohart 1985b:93. Holotype male; Peru: Simbal (TUCUMAN). (*comparata-gibba* group).\*

*pervisa* Edney. Afrotropical: Zimbabwe, South Africa.

*pervisa* Edney 1954a:587. Lectotype male (desig. Bohart herein); Zimbabwe: Bulawayo (CAPE TOWN). (*ignita* group).\*

*pharaonum* Mocsáry. Palaearctic: North Africa, Iran.

*refulgens* Klug 1845:Fig. 8 Table 45. Type ?; Somalia: Nubia (BERLIN ?). Nec Spinola 1806.

*pharaonum* Mocsáry 1882:46. Repl. name for *refulgens* Klug 1845. (*pallidicornis* group).

*pholoe* Semenov. Palaearctic: s USSR.

*pholoe* Semenov 1967:173. Holotype female; Kazakh SSR: Balamurun, Karatau foothills (LENINGRAD). (*varidens* group).\*

*phryne* Abeille. Palaearctic: Europe, Middle East.

*phryne* Abeille 1878:5. Holotype female (no head); France (PARIS). (*phryne* group).\*

*destefanii* Mocsáry 1889:229. Holotype male; Italy: Sicily (PARIS ?).

*hebraeica* Linsenmaier 1959a:88. (*phryne* ssp.). Holotype male; Jordan (LUZERN).

*burgenlandia* Linsenmaier 1968:50. (*phryne* ssp.). Holotype female; Austria: Burgenland Prov. (LUZERN).

*pilosalateralis* Linsenmaier. Palaearctic: Middle East.

*pilosalateralis* Linsenmaier 1959a:144. Holotype female; 'Palestine' (LUZERN). (*pallidicornis* group).\*\*

*pilosula* Bohart. Neotropical: Argentina.

*pilosula* Bohart 1985b:94. Holotype male; Argentina: Jujuy Prov., Mina Aguilar (TUCUMAN). (*comparata-gibba* group).\*

*plagiata* Mocsáry. Afrotropical: Kenya to South Africa.

*plagiata* Mocsáry 1890:59. Holotype female; South Africa: Cape Prov. (CAPE TOWN). (*ignita* group).\*

*inanis* Buysson 1900:146. Holotype female; South Africa: Transvaal Prov., East London (PARIS). N. synonymy.\*

*planata* Edney. Afrotropical: Namibia.

*planata* Edney 1952:447. Holotype male; Namibia: Zeefontein (CAPE TOWN). (*splendidula-senegalensis* group).\*

*pleskei* Semenov. Palaearctic: China.

*pleskei* Semenov 1892a:87. Lectotype female (desig. Bohart herein); China: Sinkiang, Sandzhu (LENINGRAD). (*comparata-scutellaris* group).\*

*plumbea* Edney. Afrotropical: Namibia.

*plumbea* Edney 1952:420. Holotype female; Namibia: Aus (LONDON). (*cuprata* group).\*

*plusia* Mocsáry. Palaearctic: Algeria.

*plusia* Mocsáry 1889:535. Holotype female; Algeria (GENEVA). (*pallidicornis* group).

*pomerantzovi* Radoszkowski. Palaearctic: s USSR.

*pomerantzovi* Radoszkowski 1891:184. Holotype female; Turkmen SSR: Atrek (KRAKOW ?).

*pompella* Bohart. Nearctic: w USA (California, Arizona).

*pompella* Bohart 1982:107. Holotype male; USA: California, Apple Valley (SAN FRANCISCO). (*succincta* s.s. group).\*

*popovi* Semenov. Palaearctic: s USSR.

*popovi* Semenov 1954a:119. Holotype female; Tadzhik SSR: Islander- Kul (LENINGRAD).\*

*porphyrophana* Mocsáry. Afrotropical: South Africa, Namibia.

*porphyrophana* Mocsáry 1890:64. Lectotype female (desig. Bohart 1986b); South Africa: Cape Prov. (BUDAPEST). (*porphyrophana* group).\*

*marginella* Mocsáry 1902b:564. Holotype male; South Africa: Orange Free State, Bothaville (PRETORIA-TM).\*

*portugalia* Linsenmaier. Palaearctic: s France, Portugal.

*portugalia* Linsenmaier 1959a:120. Holotype male; Portugal (LUZERN). (*succincta-leachii* group).

*postscutellaris* Mocsáry. Afrotropical: Uganda to South Africa.

*postscutellaris* Mocsáry 1902b:558. Lectotype female (desig. Bohart herein); Zimbabwe: Salisbury (PRETORIA-TM). (*wahlbergi* group).\*

*potanini* Radoszkowski. Palaearctic: Mongolia.

*potanini* Radoszkowski 1891:186. Holotype male; Mongolia: Tufyn (KRAKOW). (*comparata-scutellaris* group).\*

*praecipua* Linsenmaier. Palaearctic: Turkey.

*praecipua* Linsenmaier 1987:156. Holotype female; Turkey: Urfa (LUZERN).

*praetexta* Buysson. Afrotropical: Senegal and Cameroon to South Africa.

*praetexta* Buysson 1898b:536. Lectotype female (desig. Bohart herein); Senegal (PARIS). (*cerastes* group).\*

*rubrocincta* Buysson 1898b:534. Holotype male; Senegal (PARIS). N. synonymy.\*

*principalis* Smith. Palaearctic: n China, n India, Korea.

*principalis* Smith 1874b:461. Holotype female; China: Shanghai (OXFORD). (*smaragdula* group).\*

*procne* Balthasar. Palaearctic: Middle East.

*procne* Balthasar 1953:202. Holotype female; Jordan: Nahr Rubin (PRAGUE).\*\*

*procuprata* Linsenmaier. Palaearctic: Algeria, Middle East.

*procuprata* Linsenmaier 1959a:101. Holotype female; Algeria: El Kantara (LUZERN). (*cuprata* group).



*prodita* Buysson. Palaearctic: Tunisia.

*prodita* Buysson (in André) 1895:433. Holotype female; Tunisia: Tunis (Mus. ?). (*bihamata* group).

*prodives* Linsenmaier. Palaearctic: Algeria.

*prodives* Linsenmaier 1968:60. Holotype male; Algeria (LUZERN). (*pulchella* group).

*profugax* Linsenmaier. Palaearctic: Turkey.

*profugax* Linsenmaier 1968:55. Holotype female; Turkey: Konya (LUZERN). (*millenaris* group).

*prolata* Bohart. Nearctic: USA (e of Rocky Mts.), Mexico (Zacatecas).

*prolata* Bohart 1964:229. Holotype male; USA: Kansas, Riley Co. (DAVIS). (*propria* group).\*

*promerea* Linsenmaier. Palaearctic: Middle East.

*promerea* Linsenmaier 1959a:140. Holotype male; Jordan: Racuat Gan (LUZERN). (*rufitarsis* group).

*prominula* Dahlbom. Afrotropical: Mali and Zaire to Mozambique and Namibia.

*prominula* Dahlbom 1845:32. Holotype female; locality unknown (STOCKHOLM). (*smaragdula* group).\*

*rimata* Buysson 1898a:144. Holotype female; Congo (PARIS). N. synonymy.\*

*speculifera* (Bischoff) 1910:490. (*Hexachrysis*). Holotype male; locality unknown (BERLIN). N. synonymy.\*

*sycephanta* Mocsáry 1913a:39. Holotype female; Tanzania: Lukuledi (BUDAPEST).\*

*propinqua* Mocsáry. Neotropical: Panama to Argentina.

*propinqua* Mocsáry 1889:343. Lectotype female (desig. Bohart 1982); Brazil: Blumenau (VIENNA). (*nisseri* group).\*

*boutheryi* Brèthes 1903:278. Holotype female; Argentina (BUENOS AIRES).\*

*mattogrossensis* Brèthes 1903:279. Holotype male (headless); Brazil (BUENOS AIRES). N. synonymy.\*

*chiriquensis* (Bischoff) 1910:461. (*Tetrachrysis*). Holotype female; Panama: Chiriquí (BERLIN).

*burmeisteri* Mocsáry 1912b:583. Holotype female (not male); Argentina: Mendoza (BUDAPEST).\*

*propinquata* Linsenmaier. Palaearctic: North Africa, Middle East.

*propinquata* Linsenmaier 1968:62. Holotype female; Egypt: Luxor (LUZERN). (*facialis* group).

*propria* Aaron. Nearctic: central and w USA and Canada, n Mexico.

*propria* Aaron 1885:238. Lectotype male (desig. Cresson 1928); USA: Montana (PHILADELPHIA). (*propria* group).\*

*kabli* Viereck 1906:194. Holotype male; USA: Kansas (LAWRENCE).\*

- pattonella* Viereck 1906:194. Holotype male; USA: Kansas, Hamilton Co. (LAWRENCE).\*
- submontana* Rohwer 1909:91. Syntype females; USA: Colorado, Rifle (WASHINGTON).\*
- rinconensis* Mocsáry 1914:54. Holotype male; Mexico: Guerrero, Rincon (LONDON).\*

*prosuccincta* Linsenmaier. Palaearctic: Turkey.

- prosuccincta* Linsenmaier 1968:70. Holotype male; Turkey: Konya (LUZERN). (*succincta* s.s. group).

*provancheri* Schulz. Nearctic: n USA (including Alaska), Canada.

- aurichalcea* Provancher 1881:300. Lectotype female (desig. Bohart and Kimsey 1982); Canada (QUEBEC). Nec Lepeletier 1806. Adventive ?

*provancheri* Schulz 1906:154. Repl. name for *aurichalcea* Provancher 1881. (*succincta* s.s. group).

*provinceana* Linsenmaier. Palaearctic: s France, Spain.

- provinceana* Linsenmaier 1959a:145. Holotype female; s France: Carpentras (LUZERN). (*comparata* s.s. group).

*przewalskii* (Radoszkowski). Palaearctic: Mongolia.

- przewalskii* (Radoszkowski) 1887:46. (*Tetrachrysis*). Holotype male; Mongolia: Zaidam, Karia Mts. (KRAKOW ?). (*pulchella* group).

*pseudoanalisis* Linsenmaier. Palaearctic: Lebanon.

- pseudoanalisis* Linsenmaier 1968:93. Holotype female; Lebanon: Becharre (LUZERN). (*comparata* s.s. group).

*pseudobrevitarsis* Linsenmaier. Palaearctic: Europe (Finland to Spain).

- pseudobrevitarsis* Linsenmaier 1951:79. (*ignita* var.). Holotype female; Switzerland: Wallis (LUZERN). (*ignita* group).

*pseudoincisa* Balthasar. Palaearctic: Middle East, s Greece, Cyprus.

- pseudoincisa* Balthasar 1953:272. Holotype female; Israel: Jerusalem (PRAGUE). (*rufitarsis* group).\*\*

*pseudoscutellaris* Linsenmaier. Palaearctic: s Greece.

- pseudoscutellaris* Linsenmaier 1959b:238. Holotype male; Greece: Crete Isl. (LUZERN). (*comparata*—*scutellaris* group).

*psittacina* Buysson. Palaearctic: Iran.

- psittacina* Buysson 1887b:186. Holotype male; Iran (PARIS ?). (*maculicornis* group).

*pubescens* Smith. Oriental: India, Sri Lanka.

- pubescens* Smith 1852:45. India: Bombay (LONDON ?). (*comparata*—*scutellaris* group).

*puella* Buysson. Palaearctic: North Africa, Middle East.

- puella* Buysson 1900:141. Lectotype male (desig. Bohart herein); Egypt: Siala (OXFORD). (*bihamata* group).\*

*pulchella* Spinola. Palaearctic: Europe, s USSR.

*pulchella* Spinola 1808:28. Syntypes; Italy: Liguria Distr. (TURIN). (*pulchella* group).

*spinifera* Abeille 1878:5. Lectotype female (desig. Kimsey 1986c); France: Montepellier (PARIS).\*

*calimorpha* Mocsáry 1882:71. Lectotype female (desig. Móczár 1965); Hungary: Budapest (BUDAPEST).\*

*adolescentula* Semenov 1912:200. (*pulchella* var.). Syntype males, females; USSR: 'Transcaspia', Pereval (LENINGRAD).\*

*sziliana* Linsenmaier 1959a:104 (*calimorpha* ssp.). Holotype female; Italy: Sicily, Palermo (LUZERN).

*europaea* Linsenmaier 1959a:104. (*dives* ssp.). Holotype female; Portugal (LUZERN).

*personata* Semenov 1967:158. (*pulchella* ssp.). Holotype male; Iraq: Rizaabad (LENINGRAD). N. synonymy.\*

*rubicunda* Semenov 1967:158. (*pulchella* ssp.). Holotype female; Kazakh SSR: Baigakum (LENINGRAD). N. synonymy.\*

*senescens* Semenov 1967:158. (*pulchella* ssp.). Holotype female; Kazakh SSR: Dzhideli (LENINGRAD). N. synonymy.\*

*pulcherrima* Lepeletier. Palaearctic: s Europe.

*pulcherrima* Lepeletier 1806:127. (*bidentula* var.). Holotype male; France (PARIS ?). (*viridula* group).

*fenestrata* Abeille 1877:67. (*viridula* var.). Lectotype male (desig. Kimsey 1986c); France (PARIS). Nec Marquet 1879.\*

*intermedia* Buysson 1887b:181. (*bidentata* var.). Holotype male; France (PARIS ?).

*similitudina* Linsenmaier 1959a:132. (*pulcherrima* ssp.). Holotype male; France: Var (LUZERN).

*ascoensis* Linsenmaier 1987:149. (*pulcherrima* ssp.). Holotype female; France: Corsica, Asco (LUZERN).

*punctata* Christ.

*punctata* Christ 1791:400. Type ?; no locality (Mus. ?). Unknown species.

*pupilla* Semenov. Palaearctic: s USSR.

*pupilla* Semenov 1967:174. Holotype female; Uzbek SSR: Termez (LENINGRAD). (*varidens* s.s. group).\*

*purpurata* Fabricius. Palaearctic: Europe.

*purpurata* Fabricius 1787:283. Lectotype female (desig. Kimsey 1987d); Germany: 'Saxony' (COPENHAGEN). (*ignita* group).\*

*iris* Christ 1791:405. Type ?; no locality (Mus. ?). N. synonymy.

*cyanea* Villers 1789:257. Type ?; no locality (Mus. ?). N. synonymy.

*carinata* Block 1799:119. Type ?; Germany (Mus. ?). N. synonymy.

*violacea* Schrank 1804:344. Type ?; Germany: Bavaria (Mus. ?). N. synonymy.

- cyanochroa* Förster 1853:316. Holotype female; s France (BERLIN). N. synonymy.
- soluta* Dahlbom 1854:217. Holotype male; Sweden (LUND ?). N. synonymy.
- purpurea* Smith. Oriental: Indonesia, Celebes.
- purpurea* Smith 1858:26. Holotype female; Celebes (OXFORD). (*ignita* group).\*
- purpuriventris* Cresson. Nearctic: Cuba, Dominican Rep.
- purpuriventris* Cresson 1865a:107. Holotype male; Cuba (HAVANA). (*antennalis* group).
- pusbkiniana* Semenov. Palaearctic: sw USSR.
- pusbkiniana* Semenov 1967:154. Holotype male; Ukrainian SSR: Crimea, Jevpatorija (LENINGRAD). (*elegans* group).\*
- pusilla* Mocsáry. Afrotropical: South Africa.
- pusilla* Mocsáry 1908b:508. Holotype female; South Africa Willowmore (PRETORIA-TM). (*cuprata* group).\*
- pyrophana* Dahlbom. Palaearctic: sw Europe, North Africa.
- pyrophana* Dahlbom 1854:280. Holotype female; France (BERLIN). (*succincta* s. s. group).
- insoluta* Abeille 1878:4. Holotype female; Spain: Madrid (PARIS ?).
- euchlamys* Mocsáry 1889:508. Holotype female; Spain (BUDAPEST ?).
- orionea* Linsenmaier 1951:55. (*pyrophana* var.). Syntype male, female; Spain: Zamora Prov. (LUZERN).
- pyrrha* Semenov. Palaearctic: s USSR, Iran.
- pyrrha* Semenov 1967:153. Holotype female; Georgian SSR: Lagodekhi (LENINGRAD). (*elegans* group).\*
- poetarum* Semenov 1967:154. Holotype male (not female); Iran: Luristan, Bidezar (LENINGRAD). N. synonymy.\*
- sappho* Semenov 1967:153. Holotype male; Georgian SSR: Lagodekhi (LENINGRAD). N. synonymy.\*
- pyrrhina* Dahlbom. Palaearctic: s Europe, Turkey, Middle East, s USSR, North Africa.
- pyrrhina* Dahlbom 1845:9. Holotype male; Yugoslavia: Dalmatia (STOCKHOLM). (*viridula* group).
- serena* Radoszkowski 1891:194. Type ?; Turkmen SSR: Sarakhs (KRAKOW ?).
- cypria* Buysson 1898b:555. (*bidentata* var.). Holotype male; Cyprus (PARIS ?).
- cypriana* Enslin 1950:668. Repl. name for *cypria* Buysson 1898b.
- aurinotata* Linsenmaier 1968:82. (*pyrrhina* ssp.). Holotype female; Morocco (LUZERN).
- rhodesiaca* Linsenmaier 1959a:133. (*pyrrhina* ssp.). Holotype male Greece: Rhodes Isl. (LUZERN). Nec Mocsáry 1914.
- siciliaca* Linsenmaier 1959a:134. (*pyrrhina* ssp.). Holotype male; Italy: Sicily, 'Silizia' (LUZERN).
- quadrispina* Buysson. Palaearctic: North Africa, Middle East.



- quadrispina* Buysson 1887b:187. Holotype female; Egypt (PARIS). (*cerastes* group).\*
- teihardi* Buysson 1908a:79. Holotype female; Egypt (PARIS).\*
- adenica* Mocsáry 1912b:549. Holotype female; Aden (BUDAPEST).\*
- quaerita* Nurse. Oriental: India.
- quaerita* Nurse 1902:307. Holotype male; India: Deesa (LONDON).\*
- rabaudi* Buysson. Afrotropical: Somalia, South Africa.
- rabaudi* Buysson 1898b:527. Holotype male; Somalia: Medjourtine (PARIS). (*alternans* group).\*
- laetifica* Mocsáry 1908b:523. Holotype female; South Africa: Transvaal, Lichtenburg (PRETORIA-TM). N. synonymy.\*
- heroum* Mocsáry 1908b:524. Lectotype male (desig. Bohart herein); South Africa: Transvaal, Johannesburg (PRETORIA-TM). N. synonymy.\*
- ragusae* De-Stephani. Palaearctic: s Europe, Turkey, sw USSR.
- ragusae* De-Stephani 1888:125, 218. Holotype male; Italy: Sicily (PALERMO). (*varidens* s.s. group).
- taurica* Mocsáry 1889:345. Holotype female; Ukrainian SSR: Krym Penin. (KRAKOW ?).
- monochroma* Mocsáry 1893:221. Holotype male; Greece (BUDAPEST).\*
- paveli* Mocsáry 1897:645. Lectotype female (desig. Móczár 1965); Hungary (BUDAPEST).\*
- potentera* Linsenmaier 1959a:90. (*ragusae* ssp.). Holotype female; Greece: Rhodes Isl. (LUZERN).
- ramburi* Dahlbom. Palaearctic: s Europe, North Africa, Middle East.
- ramburi* Dahlbom 1854:249. Syntype male, female; Spain: Lombardy (TURIN). (*comparata* s.s. group).
- chrysostigma* Mocsáry 1889:450. Syntype male, female; Europe (ATHENS, etc.).
- tyispanicum* (Trautmann) 1926a:11. (*Tetrachrysis ramburi* var.). Type ?; Spain: Castile (BERLIN).
- rani* Mocsáry. Palaearctic: n India.
- rani* Mocsáry 1913a:23. Holotype female; India: Sikkim (BUDAPEST). (*smaragdula* group).\*
- rastellum* Brullé. Neotropical: Costa Rica to Argentina.
- rastellum* Brullé 1846:32. Holotype female; Mexico (PARIS ?). (*ignita* group).
- betsilea* Buysson 1898b:532. Holotype male; Colombia: Bogota (PARIS). N. synonymy.\*
- bogotaensis* (Bischoff) 1910:477. (*Tetrachrysis*). Holotype female; Colombia: Bogota (BERLIN). N. synonymy.\*
- platyps* (Bischoff) 1910:477. (*Tetrachrysis*). Holotype female; Panama: Chiriquí (BERLIN). N. synonymy.\*
- venezuelana* Mocsáry 1912b:572. Holotype female; Venezuela (BUDAPEST). N. synonymy.\*
- quadridens* Mocsáry 1912b:569. Lectotype female (desig. Bohart 1986b); Costa Rica (BUDAPEST). N. synonymy.\*

- ecuadorica* Mocsáry 1912b:573. Holotype female; Ecuador: Pastazza (BUDAPEST). N. synonymy.\*
- incarum* Mocsáry 1912b:579. Holotype female; Peru: Arequipa (BUDAPEST). N. synonymy.\*
- escomeli* Buysson 1913:8. Syntype females; Peru: Arequipa (PARIS ?). N. synonymy.\*
- cyanella* Mocsáry 1914:56. Holotype female; Panama: Chiriquí (BUDAPEST). N. synonymy.\*
- rectianalis* Linsenmaier. Palaearctic: Greece, Turkey.
- rectianalis* Linsenmaier 1968:110. Holotype male; Greece (LUZERN). (*maculicornis* group).
- hamanni* Linsenmaier 1968:111. (*rectianalis* ssp.). Holotype male; Turkey: Beysehir (LUZERN).
- rectilineata* Edney. Afrotropical: Zimbabwe, South Africa.
- rectilineata* Edney 1954a:570. Holotype female; Zimbabwe: Bulawyo (CAPE TOWN). (*delicatula* group).\*
- regalis* Mocsáry. Palaearctic: s USSR.
- regalis* Mocsáry 1912a:408. Lectotype male (desig. Bohart 1986b); USSR: 'Turkestan', Mt. Alexander (BUDAPEST). (*ignita* group).\*
- regina* Buysson. Palaearctic: Iran.
- regina* Buysson 1887b:186. Lectotype male (desig. Bohart herein); Iran: 'Persia' (PARIS). (*maculicornis* group).\*
- remissa* Mocsáry. Nearctic: USA, Mexico.
- remissa* Mocsáry 1914:52. Holotype female; Mexico: Chihuahua, Presidio (BUDAPEST). (*remissa* group).\*
- remota* Radoszkowski. Palaearctic: s USSR, Iran.
- remota* Radoszkowski 1888:21. Type ?; USSR: 'Caucasus' (KRAKOW ?). (*graelisii* group).
- margiana* Semenov 1967:167. (*remota* ssp.). Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). N. synonymy.\*
- retracta* Linsenmaier. Palaearctic: n Pakistan.
- retracta* Linsenmaier 1959a:103. Holotype female; Pakistan: Gilgit (LUZERN). (*pulchella* group).
- rhinata* Bohart. Afrotropical: South Africa.
- rhinata* Bohart 1988d:285. Holotype female; South Africa: Transvaal Prov., Kruger National Park, Pafuri (PRETORIA-NIC). (*maculicornis* group).\*
- rhodesiaca* Mocsáry. Afrotropical: Zimbabwe.
- rhodesiaca* Mocsáry 1914:36. Lectotype female (desig. Bohart herein); Zambia: Nawalia (LONDON). (*bihamata* group).\*
- rhodochalcea* Buysson. Palaearctic: North Africa, Middle East.
- rhodochalcea* Buysson 1900:137. Holotype male; Algeria: Biskra (OXFORD). (*bihamata* group ?).

*rivalis* Bohart. Nearctic: w USA.

*rivalis* Bohart 1964:229. Holotype male; USA: California, Napa Co., Samuel Springs (now Lake Berryessa) (DAVIS). (*propria* group).\*

*robillardi* Saussure. Afrotropical: Madagascar.

*robillardi* Saussure 1890:pl.12. Holotype female; Madagascar (PARIS). (*comparata*-*scutellaris* group).\*

*admissa* Buysson 1898a:137. Holotype male; Madagascar: Tananarive (PARIS).\*

*robweriana* Bohart. Neotropical: Peru, nw Argentina.

*rugosa* Rohwer 1913:444. Holotype female; Peru (WASHINGTON). Nec Buysson 1900.\*

*robweriana* Bohart. N. repl. name for *rugosa* Rohwer 1913. (*grandis* group).

*rubricata* Mocsáry. Palaearctic: Egypt.

*rubricata* Mocsáry 1902a:340. Lectotype male (desig. Bohart 1986b); Egypt: Cairo (BUDAPEST). (*rubricata* group).\*

*rubinanalís* Linsenmaier. Afrotropical: Senegal.

*rubinanalís* Linsenmaier 1959a:167. Holotype female; Senegal: Dakar (LUZERN). (*wahlbergi* group).

*rubricollis* Buysson. Palaearctic: Middle East.

*rubricollis* Buysson 1900:138. Holotype male; Syria: Brumana (OXFORD). (*elegans* group).\*

*rubripyga* Tsuneki. Palaearctic: s USSR to Japan.

*rubripyga* Tsuneki 1950:78. Holotype female; Japan: Tokyo (OSAKA). (*ignita* group).

*rubrocoerulea* Linsenmaier. Palaearctic: Canary Isls.

*rubrocoerulea* Linsenmaier 1968:70. Holotype female; Spain: Canary Isl., Fuerteventura, Betaneuria (LONDON). (*succincta* s.s. group).\*

*ruddii* Shuckard. Palaearctic: Europe (widespread).

*ruddii* Shuckard 1836:163. Syntypes; England: Hampshire (Mus. ?). (*ignita* group).

*auripes* Wesmael 1839:175. Syntypes; Belgium: Brussels (BRUSSELS).

*comosa* Haupt 1956:110. Holotype male; Germany (DRESDEN ?).

*brevimarginata* Linsenmaier 1959a:153. (*ruddii* ssp.). Holotype female; Italy: Sicily (LUZERN).

*rueppelli* Buysson. Palaearctic: Ethiopia.

*rueppelli* Buysson 1904:260. Holotype female; Ethiopia (FRANKFURT). (*elegans* group).\*

*rufitarsis* Brullé. Palaearctic: s Europe, Turkey, Middle East.

*rufitarsis* Brullé 1833:375. Syntype male, female; Greece (Mus. ?). (*rufitarsis* group).

*angulata* Dahlbom 1854:277. Holotype female; Turkey (BERLIN ?).

*rugulosa* Abeille 1879:89. Holotype male; Spain (PARIS ?).

*incisa* Buysson 1887b:184. (*rufitarsis* var.). Syntype females; Israel: Caiffa (PARIS).\*

- strangulata* Gogorza 1887:72. Type ?; Spain (MADRID ?).
- progressa* Linsenmaier 1959a:138. (*rufitarsis* ssp.). Holotype female; Jordan: Jericho (LUZERN).
- exadversa* Linsenmaier 1959b:238. (*rufitarsis* ssp.). Holotype male; Israel: Jerusalem (LUZERN).
- russica* Linsenmaier. Palaearctic.
- russica* Linsenmaier 1959a:116. Holotype female; 's. Russia' (HELSINKI). (*succincta* s.s. group).
- rutilans* Olivier. Palaearctic: Europe, Eurasia.
- rutilans* Olivier 1790:676. Type ?; France: Angoumois (Mus. ?). (*splendidula* s. s. group).
- ornata* Schenck 1856:32. Holotype; Germany: Nassau region (FRANKFURT). Nec Smith 1851.
- rigiana* Linsenmaier 1951:62. (*rutilans* var.). Syntype male, female; Europe (LUZERN).
- extranea* Linsenmaier 1959a:128. (*rutilans* ssp.). Holotype male; Japan (LUZERN).
- rutilata* Buysson. Afrotropical: Senegal, Kenya.
- rutilata* Buysson 1898a:132. Holotype female; Senegal (PARIS). (*capitalis* group).\*
- rutiliventris* Abeille. Palaearctic: Europe, Eurasia, North Africa.
- rutiliventris* Abeille 1879:74. Type ?, France: Bordeaux (PARIS ?). (*ignita* group).
- dusmeti* (Trautmann) 1926a:9. (*Tetrachrysis ruddii* var.). Holotype male; Spain: Castile (BERLIN). Nec Mercet 1904a.\*
- valenciana* Hoffmann 1935:228. Type ?; Spain: Valencia (Mus. ?).
- nankingensis* Linsenmaier 1959a:153. (*rutiliventris* ssp.). Holotype female; China: Nan King (LUZERN).
- vanlithi* Linsenmaier 1959a:153. (*rutiliventris* ssp.). Holotype female; Switzerland: Wallis (LUZERN).
- proba* Linsenmaier 1959a:153. (*rutiliventris* ssp.). Holotype male; Pakistan: Chhantir Gah (LUZERN).
- portmanni* Linsenmaier 1968:98. (*rutiliventris* ssp.). Holotype female; Morocco: Col du Zad (LUZERN).
- castiliana* Linsenmaier 1968:97. (*rutiliventris* ssp.). Repl. name for *dusmeti* Trautmann 1926a.
- sertavulensis* Linsenmaier 1968:134. (*rutiliventris* ssp.). Holotype female; Turkey (LUZERN).
- sabulosa* Radoszkowski. Palaearctic: s USSR.
- sabulosa* Radoszkowski 1877:24. Holotype male; Uzbek SSR: Mt. Karak (MOSCOW ?). (*sabulosa* group).
- sacrata* Buysson. Palaearctic: North Africa, Middle East, s USSR.
- sacrata* Buysson 1898a:140. Holotype female; Algeria: Biskra (PARIS). (*maculicornis* group).\*



- dalila* Balthasar 1953:238. Holotype male; Israel: Jerusalem (PRAGUE).\*
- terpsichore* Balthasar 1953:295. Holotype female; Jordan: Wadi el Kelt (PRAGUE).\*\*
- svetlana* Semenov 1954a:116. Lectotype male (desig. Bohart herein); Tadzhik SSR: Kyzyl-Kum Desert (LENINGRAD).\*
- caucasiaca* Linsenmaier 1987:155. (*sacrata* ssp.). Holotype female; Hungary: Budapest (BUDAPEST).
- saginata* Linsenmaier. Australian: Australia.
- saginata* Linsenmaier 1982:341. Holotype female, Australia (LONDON). (*interceptor* group).\*
- salamensis* Buysson. Afrotropical: Tanzania.
- salamensis* Buysson 1900:101. Holotype female; Tanzania: Dar-Es- Salaam (VIENNA).\*
- saltana* Bohart. Neotropical: Bolivia to Argentina.
- saltana* Bohart 1985b:94. Holotype male; Argentina: Salta Prov., Cafayate (DAVIS). (*comparata-gibba* group).\*
- sandaracata* Bingham. Palaearctic: India.
- sandaracata* Bingham 1903:466. Holotype female; India: Sikkim (LONDON). (*ignita* group).\*
- santschii* Linsenmaier. Palaearctic: Tunisia.
- santschii* Linsenmaier 1959a:120. Holotype female; Tunisia (ZURICH). (*succincta-leachii* group:).
- sapphirus* Semenov. Palaearctic: s USSR.
- sapphirus* Semenov 1967:169. Holotype female; Uzbek SSR: Fergana, Kuksara (LENINGRAD). (*ignita* group).\*
- sardarica* Radoszkowski. Palaearctic: Middle East, s USSR, North Africa.
- sardarica* Radoszkowski 1890:509. Holotype male; Turkey: Buyuk Agri Dagi (Mt. Ararat) (KRAKOW ?). (*aestiva* group).
- lepidula* Linsenmaier 1959a:123. (*sardarica* ssp.). Holotype male; Algeria: Les Tamarins (LUZERN).
- perrecta* Linsenmaier 1959a:123. (*sardarica* ssp.). Holotype female; Tunisia (LUZERN).
- satrapes* Mocsáry. Afrotropical: Ethiopia to Gambia.
- satrapes* Mocsáry 1913a:19. Lectotype female (desig. Bohart 1986b); Ethiopia: Shirati (BUDAPEST). (*smaragdula* group).\*
- gambiensis* Mocsáry 1914:66. Holotype male; Gambia (LONDON). N. synonymy.\*
- schalfeewi* Semenov. Palaearctic: n China.
- schalfeewi* Semenov 1892a:80. Holotype male; China: Sinkiang, Sandzhu (LENINGRAD). (*comparata-scutellaris* group).\*
- schiodtei* Dahlbom. Oriental, Australian.

*schiodtei* Dahlbom 1854:309. Lectotype female (desig. Bohart herein); India: Tranquebaria (COPENHAGEN). (*smaragdula* group).\*

*gemmata* Smith 1874b:461. Holotype female; Australia (LONDON). N. synonymy.\*

*schlettereri* Mocsáry. Nearctic: Mexico, w USA.

*schlettereri* Mocsáry 1889:494. Holotype female (headless); Mexico: Tacubaya (VIENNA). (*oreadis* group).\*

*charigaster* Bohart 1982:118. Holotype male; USA: Oregon, Hood River (DAVIS). N. synonymy.\*

*schoenherri* Dahlbom. Afrotropical: Uganda and Angola to South Africa.

*schoenherri* Dahlbom 1845:9. Holotype female; South Africa: Natal Prov. (STOCKHOLM). (*smaragdula* group).\*

*auxifera* Buysson 1900:153. Holotype male; South Africa: Natal Prov. (PARIS ?).

*schousboei* Dahlbom. Palaearctic: North Africa.

*schousboei* Dahlbom 1854:272. Syntypes; Morocco: Tangier (COPENHAGEN). (*succincta* s.s. group).\*

*thoracica* Buysson 1895:406. (in André). Lectotype female (desig. Bohart herein); Algeria (PARIS).\*

*naefi* Linsenmaier 1959a:112. (*schousboei* ssp.). Holotype female; Morocco: Agadir (Naef coll.).

*schulzi* Buysson. Oriental: Indonesia, Celebes.

*schulzi* Buysson 1904:267. Holotype female; Celebes: Toli Toli (PARIS).\*

*schusteri* Bohart. Nearctic: USA (California).

*schusteri* Bohart 1982:133. Holotype male; USA: California, Santa Barbara Co., Santa Cruz Isl., Canada del Medio (DAVIS). (*ignita* group).\*

*scintillula* Morice. Palaearctic: Algeria.

*scintillula* Morice 1916:267. Holotype male; Algeria: Constantine Prov., Sidi Okba near Biskra (OXFORD). (*varidens* s.s. group).\*

*scitula* Cresson. Nearctic: USA (widespread), Mexico (Baja California).

*scitula* Cresson 1865b:308. Holotype female; USA: 'Colorado Territory' (PHILADELPHIA). (*succincta* s. s. group).\*

*californica* Gribodo 1879:336. Holotype female; USA: California (GENOA).\*

*sculptidiscalis* Linsenmaier. Neotropical: Chile.

*sculptidiscalis* Linsenmaier 1987:154. Holotype male; Chile: Coquimbo (LUZERN). (*grandis* group).

*scutata* Mocsáry. Afrotropical: Tanzania.

*scutata* Mocsáry 1912a:382. Lectotype female (desig. Bohart 1986b); Tanzania: Lukuledi (BUDAPEST).\*

*scutellaris* Fabricius. Palaearctic: Europe, North Africa, s USSR.

*scutellaris* Fabricius 1794:458. Holotype; Italy (COPENHAGEN). (*comparata-scutellaris* group).

*segmentata* Dahlbom 1829:9. Syntypes; Sweden: Kasberg (LUND ?).

*rosenhaueri* Förster 1853:322. Holotype female; S. Europe (BERLIN ?).

*obscura* Radoszkowski 1876a:106. Holotype; USSR: 'Caucasus' (KRAKOW ?). Nec Smith 1859.

*modesta* Tournier 1878:306. (*scutellaris* var.). Type ?; France: Leman Basin (Mus. ?).

*undulata* Radoszkowski 1880:145. Type ?; USSR: 'Caucasus' (KRAKOW ?).

*chalcocorysa* Mocsáry 1887a:15. Repl. name for *obscura* Radoszkowski 1876a.

*hofferi* Balthasar 1944:28. (*scutellaris* var.). Holotype male; Czechoslovakia (PRAGUE).

*marteni* Linsenmaier 1951:64. (*scutellaris* var.). Syntype male, female; Spain: Zamora Prov. (LUZERN).

*sefrensis* Buysson. Palaearctic: Algeria, Morocco.

*sefrensis* Buysson 1900:150. Holotype female; Algeria: Ain-Sefra (Mus. ?). (*facialis* group).

*semenovi* Radoszkowski. Palaearctic: s USSR.

*semenovi* Radoszkowski 1891:193. Lectotype female (desig. Bohart herein); Turkmen SSR: Sarakhs (KRAKOW). (*comparata-scutellaris* group).\*

*semicincta* Lepeletier. Palaearctic: sw Europe, North Africa.

*semicincta* Lepeletier 1806:127. Holotype male; France (TURIN ?). (*comparata-scutellaris* group).

*imperialis* Dahlbom 1845:11. Type ?; Algeria (STOCKHOLM). Nec Westwood 1842.

*tricolor* Lucas 1849:309. (*semicincta* var.). Type ?; France: Lacalle (PARIS ?).

*semifumata* (Bischoff). Afrotropical: Kenya.

*semifumata* (Bischoff) 1910:468. (*Tetrachrysis*). Holotype female; Kenya (BERLIN). (*comparata-gibba* group).\*

*semihyalina* (Bischoff). Afrotropical: Togo.

*semihyalina* (Bischoff) 1910:468. (*Tetrachrysis*). Holotype female; Togo: Mangu (BERLIN). (*comparata-gibba* group).\*

*semiviolacea* Mocsáry. Palaearctic: North Africa.

*semiviolacea* Mocsáry 1889:484. Lectotype female (desig. Bohart 1986b); Algeria: (BUDAPEST). (*cerastes* group).\*

*semiviridana* Linsenmaier 1959a:175. (*semiviolacea* ssp.) Holotype female; Morocco (LUZERN).

*senegalana* Bohart. Afrotropical: Senegal.

*senegalana* Bohart 1988d:286. Holotype male; Senegal: 3 km n Tanaff (LUND). (*cuprata* group).\*

*senegalensis* Mocsáry. Afrotropical: Senegal to South Africa.

- viridis* Brullé 1846:41. Lectotype female (desig. Bohart herein); Senegal (PARIS). Nec Olivier 1790.\*
- senegalensis* Mocsáry 1887a:17. Repl. name for *viridis* Brullé. (*splendidula*–*senegalensis* group).
- sibylla* Mocsáry 1889:359. Holotype female; South Africa: Natal Prov., 'Caffraria' (VIENNA). N. synonymy.\*
- beliaca* Mocsáry 1902b:551. Lectotype female (desig. Bohart 1986b); South Africa: Cape Prov. (BUDAPEST). N. synonymy.\*
- sulcifoveolata* (Bischoff) 1910:465. (*Tetrachrysis*). Lectotype female (desig. Bohart herein); South Africa: Transvaal Prov., Lydenburg (BERLIN). N. synonymy.\*
- schenkiana* Mocsáry 1912a:398. Holotype female; Tanzania (BUDAPEST). N. synonymy.\*
- volutans* Edney 1954a:612. Lectotype male (desig. Bohart herein); Zimbabwe: Bulawayo (CAPE TOWN). N. synonymy.\*
- separata* (Trautmann). Palaearctic: Greece, Middle East.
- separata* (Trautmann) 1926a:8. (*Gonochrysis elegans* var.). Holotype female; Greece: Zakynthos (Zante) (BERLIN). (*elegans* group).\*
- serpentula* Semenov. Palaearctic: s USSR.
- serpentula* Semenov 1967:173. Holotype female; Kazakh SSR: Baigakum, Dzhulek (LENINGRAD).\*
- serrata* Taylor. Nearctic: central and w USA and Canada, n Mexico.
- serrata* Taylor 1924:329. Holotype female; USA: Washington, Wenass Valley (SAN FRANCISCO). (*smaragdula* group).\*
- serva* Buysson. Palaearctic: Egypt.
- serva* Buysson 1898a:132. Holotype male; Egypt: Cairo (PARIS).\*
- genuata* Balthasar 1953:188. Holotype male; Israel: Jerusalem (PRAGUE). N. synonymy.\*
- severa* Mocsáry. Nearctic: USA (widespread), s Canada, Mexico.
- severa* Mocsáry 1889:573. Holotype female; Mexico: Cordova (Cordoba!) (GENEVA). (*smaragdula* group).\*
- praestans* Buysson 1898a:144. Holotype female; West Indies: Grenada (locality in error? poss. Grenada, Mississippi) (PARIS). N. synonymy.\*
- shoyozana* Tsuneki. Palaearctic: Korea.
- shoyozana* Tsuneki 1950:73. Holotype female; Korea: Shoyozan (OSAKA).
- sikkimensis* Mocsáry. Palaearctic: India.
- sikkimensis* Mocsáry 1912b:554. Holotype female; India: Sikkim (BUDAPEST). (*splendidula*–*senegalensis* group).\*
- simplonica* Linsenmaier. Palaearctic: Europe.
- simplonica* Linsenmaier 1951:64 (*analisis* var.). Syntype male, female; Europe (LUZERN). (*comparata* s.s. group).



*simulans* Mocsáry. Australian: Australia (widespread).

*simulans* Mocsáry 1889:380. Holotype male; Australia: South Australia (GENEVA). (*interceptor* group).

*microtrema* Mocsáry 1893:227. Holotype female; Australia (HAMBURG, destroyed). Neotype female (desig. Bohart herein); Australia: Western Australia, Gingin, R. M. Bohart (DAVIS). N. synonymy.\*

*adelaidensis* Buysson 1893:248. Holotype male; Australia: South Australia: Adelaide (PARIS). N. synonymy.\*

*fulvitaris* Mocsáry 1912b:563. Holotype male; Australia: Victoria (BUDAPEST). N. synonymy.\*

*riessi* Linsenmaier 1982:338. Holotype female; Australia: South Australia, Rostrevor (LUZERN). N. synonymy.

*simulpriesneri* Linsenmaier. Palaearctic: Egypt.

*simulpriesneri* Linsenmaier 1968:92. Holotype male; Egypt (Kusdas coll.). (*pallidicornis* group).

*sinaica* Walker. Palaearctic: Egypt.

*sinaica* Walker 1871:7. Holotype female; Egypt: Mt. Sinai (LONDON, destroyed).

*sinaitica* Mocsáry 1889:415. Invalid emendation of *sinaica* Walker 1871.

*sinensis* Buysson. Palaearctic: China, Japan.

*sinensis* Buysson 1898a:139. (*ignita* var.). Holotype female; China: Shanghai (PARIS ?). (*ignita* group).

*tsunekii* Linsenmaier 1959a:155. (*sinensis* ssp.). Holotype female; Japan (LUZERN).

*sinuosa* Dahlbom. Afrotropical: South Africa.

*sinuata* Dahlbom 1845:12. Holotype female; South Africa: Cape Prov. (STOCKHOLM). Nec Brullé 1833.

*sinuosa* Dahlbom 1854:153. Holotype male; South Africa: Cape Prov. (STOCKHOLM). (*capitalis* group).

*poecila* Mocsáry 1889:440. Repl. name for *sinuata* Dahlbom 1845. Nec Brullé 1833.

*ceres* Edney 1952:429. Lectotype female (desig. Bohart herein); South Africa: Cape Prov., Ceres (CAPE TOWN). N. synonymy.\*

*siren* Semenov. Palaearctic: s USSR.

*siren* Semenov 1967:180. Holotype male; Turkmen SSR: Imam-Baba (LENINGRAD). (*comparata* s. s. group).\*

*skorikovi* Semenov. Palaearctic: sw USSR.

*skorikovi* Semenov 1967:180. Holotype male; Kazakh SSR: Dzhulek (LENINGRAD). (*comparata-scutellaris* group).\*

*smaragdula* Fabricius. Nearctic and neotropical: e USA, south to Costa Rica.

*smaragdula* Fabricius 1775:357. Holotype female; North America: 'America boreali' (LONDON). (*smaragdula* group).\*

- pennsylvanica* Brullé 1846:24. Holotype female; USA: 'Philadelphie' (Serville Coll., Lost ?).
- snowi* Viereck. Nearctic: w USA.
- snowi* Viereck 1906:195. Holotype male; USA: Kansas, Clark Co. (LAWRENCE).\*
- soleana* (Cameron). Afrotropical: South Africa.
- soleana* (Cameron) 1906b:415. (*Tetrachrysis*). Holotype female; South Africa: BrakKloof (LONDON). (*wahlbergi* group).\*
- sollicita* Mocsáry. Australian: Australia (Queensland to South Australia), New Guinea.
- sollicita* Mocsáry 1913a:29. Holotype female; Australia: Victoria, Rutherglen (BUDAPEST). (*smaragdula* group).\*
- consors* Mocsáry 1913a:30. Holotype female; Australia: Queensland, Cooktown (BUDAPEST). N. synonymy.\*
- simplifacies* (Linsenmaier) 1982:345. (*Hexachrysis*). Holotype male; Australia: South Australia: Rostrevor (LUZERN). N. synonymy.
- somaliae* Bohart. Palaearctic: Somalia.
- somaliae* Bohart 1988d:287. Holotype male; Somalia: Laga (DAVIS). (*somaliae* group).\*
- somalina* Mocsáry. Palaearctic: Somalia.
- somalina* Mocsáry 1889:512. Lectotype male (desig. Bohart 1986b); Somalia (BUDAPEST). (*viridissima* group).\*
- soror* Dahlbom. Palaearctic: s Europe to s USSR.
- soror* Dahlbom 1854:240. Holotype male; Greece: Rhodes Isl. (BERLIN). (*comparata*-*scutellaris* group).
- ariadne* Mocsáry 1889:416. Lectotype male (desig. Móczár 1965); Greece (BUDAPEST).\*
- consobrina* Mocsáry 1889:458. (*soror* var.). Lectotype female (desig. Bohart 1986b); USSR: 'Transcaspia' (BUDAPEST).\*
- gracilis* Trautmann 1927:177. (*scutellaris* var.). Type ?; Turkey: Anatolia (BERLIN ?). Nec Schenck 1856.
- gracilia* Linsenmaier 1959a:125. (*soror* ssp.). Repl. name for *gracilis* Trautmann 1927.
- calandra* Semenov 1967:167. (*scutellaris* ssp.). Holotype female; Georgian SSR: Tbilisi (LENINGRAD).\*
- speciosa* Radoszkowski. Palaearctic: s USSR.
- speciosa* Radoszkowski 1877:17. Lectotype male (desig. Bohart herein) Uzbek SSR: Tashkent desert (MOSCOW). (*maculicornis* group).\*
- speculata* Buysson. Oriental: India.
- speculata* Buysson 1896:473. Holotype female; India: Bombay, Poona (PARIS). (*succincta* s.s. group).\*
- spinidens* (Radoszkowski). Palaearctic: Mongolia.
- spinidens* (Radoszkowski) 1887:48. (*Tetrachrysis*). Holotype male; Mongolia: Zaidam (KRAKOW ?).

*splendens* Dahlbom. Afrotropical: South Africa.

*splendens* Dahlbom 1854:312. Lectotype male (desig. Bohart herein); South Africa: Cape Prov. (TURIN). (*splendens* group).\*

*splendidula* Rossi. Palaearctic: s Europe, Turkey, s USSR, North Africa.

*splendidula* Rossi 1790:76. Type ?; Italy: Tuscany (Mus. ?). (*splendidula* group).

*versicolor* Lucas 1849:305. Syntypes; Algeria: Bône (PARIS ?). Nec Spinola 1808.

*cyanopyga* Dahlbom 1854:253. Syntype male, female; Algeria (VIENNA).

*dominula* Abeille 1877:67 Holotype male; France: Toulon (PARIS).\*

*maroccana* Mocsáry 1883:16. Holotype male; Morocco (Mus. ?).

*unica* Radoszkowski 1891:189. (*splendidula* var.). Syntype females; Turkmen SSR: Ashkabad (KRAKOW ?).

*chlorisana* Buysson (In André) 1895:534. (*cyanopyga* var.). Holotype male; Greece: Aegina (Kruper coll.).

*euroa* Linsenmaier 1959a:127. (*splendidula* ssp.). Holotype female; Greece: Rhodes Isl. (LUZERN).

*abdominata* Linsenmaier 1959a:127. (*splendidula* ssp.). Holotype female; Morocco (LUZERN).

*stangei* Bohart. Afrotropical: Namibia, Zaire, South Africa.

*stangei* Bohart 1988d:287. Holotype female; Namibia: 68 km w Karibib (GAINESVILLE-FSCA). (*wahlbergi* group).\*

*stanleyana* Schletterer. Afrotropical: Zaire.

*stanleyana* Schletterer 1891:30. Holotype female Zaire (TERVUREN ?). (*comparata-gibba* group).

*stenodera* Mocsáry. Afrotropical: South Africa.

*stenodera* Mocsáry 1914:65. Holotype male; South Africa (BUDAPEST). (*smaragdula* group).\*

*stenomorpha* Mocsáry. Afrotropical: South Africa.

*stenomorpha* Mocsáry 1908b:515. Holotype female; South Africa: Cape Prov., Willowmore (CAPE TOWN ?).

*stepaneki* Balthasar. Palaearctic: Middle East.

*stepaneki* Balthasar 1953:291. Holotype female; Israel: Jerusalem (PRAGUE). (*cerastes* group ?).\*

*stevensoni* Bohart. Afrotropical: South Africa.

*stevensoni* Bohart 1988d:288. Holotype male; South Africa: Cape Prov., Grahamstown (GRAHAMSTOWN). (*cerastes* group).\*

*stigmaticornis* Linsenmaier. Palaearctic: Algeria.

*stigmaticornis* Linsenmaier 1968:111. Holotype male; Algeria: Biskra (LUZERN). (*maculicornis* group).\*\*

- stilboides* Spinola. Afrotropical: widespread, Palaearctic: Turkey to India, Oriental: Thailand.  
*stilboides* Spinola 1838:446. Holotype female; Egypt (BERLIN ?). (*oculata* group).  
*smaragdula* (Lepeletier and Serville) 1825:494. (*Pyria*). Holotype male; French Guiana (introduced or locality in error) (TURIN). Nec Fabricius 1775.  
*sexdentata* (Guérin) 1842:145. (*Stilbum*). Lectotype female (desig. Bohart herein); Senegal (GENOA). Nec Christ 1791.\*  
*nobilis* Klug 1845:Table 45 Fig. 2. Holotype female; Ethiopia: Ambukohl (BERLIN). Nec Sulzer 1776.\*  
*hedenborgi* (Dahlbom) 1845:16. (*Stilbum*). Holotype ?; Turkey: Bahr' el Abiad (STOCKHOLM).  
*incerta* Dahlbom 1854:346. Syntype males; French Guiana: Cayenne (introduced or locality in error) (TURIN ?).  
*indica* Mocsáry 1889:591. Holotype male; India: 'Himalaya' (BUDAPEST). Nec Schrank 1804.\*  
*africanum* Buysson 1900:155. (*orientalis* var.). Holotype female; Mozambique: Chire, Zambeze River (PARIS).\*  
*thailandina* Tsuneki 1961:378. Holotype female; Thailand: Chieng Mai (KOBE). N. synonymy.  
*strauchi* Semenov. Palaearctic: China.  
*strauchi* Semenov 1892a:85. Holotype female; China: Sandzhu (LENINGRAD).\*  
*striatifacialis* Linsenmaier. Palaearctic: Turkey.  
*striatifacialis* Linsenmaier 1968:133. Holotype female; Turkey: Birecik (LUZERN). (*succincta* s.s. group).  
*striatula* Bohart. Neotropical: Brazil and Bolivia to Argentina.  
*striatula* Bohart 1985b:94. Holotype male; Argentina: Salta Prov., Cafayate (DAVIS). (*comparata-gibba* group).\*  
*suavis* Christ. Palaearctic: Europe.  
*suavis* Christ 1791:406. Holotype male; Greece. Identity unknown.  
*subanalis* Linsenmaier. Palaearctic: Greece.  
*subanalis* Linsenmaier 1968:94. Holotype male; Greece: Lidorikion (LUZERN). (*comparata* s.s. group).  
*subaurata* Radoszkowski. Palaearctic: s USSR.  
*subaurata* Radoszkowski 1891:192. Holotype male; Turkmen SSR: Ashkabad (KRAKOW?).  
*subaurotecta* Linsenmaier. Palaearctic: Greek Isls, Middle East.  
*subaurotecta* Linsenmaier 1959a:127. Holotype male; Greece: Rhodes Isl. (LUZERN). (*splendidula* s.s. group).\*\*  
*subcaerulea* Radoszkowski. Palaearctic: s USSR, Middle East.



- subcaerulea* Radoszkowski 1891:191. Holotype female; Turkmen SSR: Ashkabad (KRAKOW ?). (*comparata* s.s. group).
- subdistincta* Linsenmaier. Palaearctic: sw USSR.
- subdistincta* Linsenmaier 1968:110. Holotype male; USSR: 'Transcaspia' (LUZERN). (*cerastes* group).
- subfasciata* Buysson.
- subfasciata* Buysson 1898b:566. Holotype female; no locality given (PARIS ?).
- subfoveolata* Brullé. Neotropical: Chile, n Argentina.
- subfoveolata* Brullé 1846:31. Lectotype male (desig. Bohart herein); Chile (PARIS). (*grandis* group).\*
- episcopalis* Guérin 1842:47. Holotype female; Chile (GENOA). Nec Block 1799.\*
- guerini* Mocsáry 1887a:14. Repl. name for *episcopalis* Guérin.
- subincisa* Linsenmaier. Palaearctic: North Africa, Middle East.
- subincisa* Linsenmaier 1959a:140. Holotype male; 'Palestine' (LUZERN). (*rufitarsis* group).
- subintegra* Edney. Afrotropical: South Africa.
- subintegra* Edney 1952:441. Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*exsecata* group).\*
- subordinata* (Buysson). Afrotropical: Congo.
- subordinata* (Buysson) 1909:212. (*Hexachrysis*). Holotype female; Congo (PARIS). (*smaragdula* group).\*
- subsinnuata* Marquet. Palaearctic: s Europe, Turkey, Middle East, North Africa.
- subsinnuata* Marquet 1879:160. Repl. name for *mediocris* Dahlbom 1854. (*subsinnuata* group).
- mediocris* Dahlbom 1854:162. Holotype; Europe (Mus. ?). Nec Dahlbom 1845.
- fallax* Mocsáry 1882:52. Lectotype female (desig. Móczár 1965); Hungary: Budapest (BUDAPEST).\*
- wuestneii* Mocsáry 1889:295. Holotype female; Syria (COPENHAGEN).\*
- unifasciata* Hoffmann 1937:491. (*subsinnuata* var.). Type ?; Spain (Mus. ?).
- iphimedeia* (Trautmann) 1926a:9. (*Gonochrysis mediocris* var.). Holotype female; Yugoslavia: Sarajevo (BERLIN).
- laevifallax* Perraudin 1978:53. Holotype female; France: Corsica (Mus. ?).
- succincta* Linnaeus. Palaearctic: Europe, North Africa, Middle East, s USSR.
- succincta* Linnaeus 1767:947. Type ?; Europe (Mus. ?). (*succincta* s.s. group).
- tarsata* Dahlbom 1845:105. Syntypes ?; Germany: Berlin (BERLIN).
- obtusiventris* Förster 1853:305. In key only.
- succinctula* Dahlbom 1854:179. Syntype females; Europe (Mus. ?).

- minutula* Schenck 1871:254. Holotype female; Germany: Dortmund (FRANKFURT ?).
- aeneipes* Tournier 1879:94. Holotype male; Switzerland: Peney (GENEVA).
- frivaldszkii* Mocsáry 1882:84. Lectotype male (desig. Móczár 1965); Hungary: Budapest (BUDAPEST).\*
- abeillei* Frey-Gessner 1887:62. (*bicolor* var.). Type ?; Switzerland (Mus. ?). Nec Gribodo 1879.
- sparsopunctata* Buysson (in André) 1892:422. (*succincta* var.). Holotype female; Turkmen SSR: Serakhs (Mus. ?).
- alicantina* Mercet 1904a:86. (*succincta* var.). Holotype female; Spain: Alicante (Mus. ?).
- ignifacies* Mercet 1904a:86. (*succincta* var.). Syntype females; Spain: Montarco (MADRID).
- virideocincta* Hellen 1919:211. (*succincta* ab.). Type ?; Finland. Invalid name.
- asiatica* (Trautmann) 1926a:10. (*Tetrachrysis succincta* var.). Type ?; Uzbek SSR: Fergana (BERLIN). Nec Radoszkowski 1889.
- germanica* (Trautmann) 1926a:10. (*Tetrachrysis succincta* var.). Type ?; Germany: Berlin (BERLIN).
- pulcherrima* (Trautmann) 1926a:10. (*Tetrachrysis succincta* var.). Type ?; Yugoslavia: Istria, Pola (BERLIN). Nec Lepeletier 1806.
- hirsuta* (Trautmann) 1926a:10. (*Tetrachrysis succincta* var.). Type ?; Austria: Tyrol (BERLIN). Nec Gerstaecker 1869.
- noskiewiczzi* (Trautmann) 1927:161. (*Tetrachrysis succincta* var.). Type ?; Yugoslavia: Dalmatia (BERLIN ?).
- pannonica* Hoffmann 1935:228. (*succincta* var.). Syntypes; Austria: Vienna (Mus. ?).
- decorata* Hoffmann 1937:491. (*succincta* var.). Type ?; Austria (Mus. ?). Nec Mocsáry 1889.
- cypriana* Linsenmaier 1951:50. (*leachii* var.). Syntype male, female; Cyprus (LUZERN). Nec Enslin 1950.
- komareki* Balthasar 1953:287. (*succincta* ssp.). Holotype female; Israel: Jerusalem (PRAGUE).
- ignifacialis* Linsenmaier 1959a:115. Unnec. Repl. name for *ignifacies* Mercet 1904a.
- cypruscula* Linsenmaier 1959a:120. Repl. name for *cypriana* Linsenmaier 1951.
- tristicula* Linsenmaier 1959a:115. (*succincta* ssp.). Holotype female; Morocco: Beni Mellal (LUZERN).
- sumptuosa* Smith. Oriental: Indonesia, Celebes.
- sumptuosa* Smith 1858:27. Holotype female; Celebes: Makassar (Mak.) (OXFORD). (*capitalis* group).\*
- superba* Cresson. Nearctic: Cuba.
- superba* Cresson 1865a:106. Holotype male; Cuba (BERLIN). (*intricans* group).
- sweirstrai* Edney. Afrotropical: South Africa.
- sweirstrai* Edney 1954b:654. Holotype female; South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*wahlbergi* group).\*
- sybaritoides* Linsenmaier. Palaearctic: Turkey.

- sybaritoides* Linsenmaier 1968:83. Holotype male; Turkey: Kayseri Ali Dagħ (LUZERN). (*graelisii* group).
- syrdarica* Mocsáry. Palaearctic: s USSR.
- syrdarica* Mocsáry 1909b:5. Holotype male; Kazakh SSR: Syr-Daria, Baigakum (BUDAPEST). (*pallidicornis* group).\*
- syriaca* Guérin. Palaearctic: North Africa, Middle East.
- episcopalis* Spinola 1838:449. Syntypes; Egypt (TURIN). Nec Bloch 1799.
- syriaca* Guérin 1842:147. Holotype female; Syria (GENOA). (*viridissima* group).\*
- nomima* Buysson (In André) 1895:488. Holotype male; Egypt: Cairo (Mus. ?).
- rubrafeminae* Linsenmaier 1968:79. (*episcopalis* ssp.). Holotype female; Algeria (LUZERN).
- syrinx* Tsuneki. Palaearctic: Korea, Japan.
- syrinx* Tsuneki 1950:75. Holotype female; Korea: Heiko (OSAKA). (*ignita* group).
- sznabli* Radoszkowski. Palaearctic: s USSR.
- sznabli* Radoszkowski 1891:196. Type ?; Turkmen SSR: Sarakhs (KRAKOW ?).
- taborskyi* Balthasar. Palaearctic: Middle East.
- taborskyi* Balthasar 1953:292. Holotype female; Israel: Jerusalem (PRAGUE). (*comparata* s.s. group).\*
- taczanovskii* Radoszkowski. Palaearctic: s Europe, North Africa, Turkey, Middle East.
- taczanovskii* Radoszkowski 1876b:146. Holotype female; Egypt (KRAKOW ?). (*taczanovskii* group).
- viridimargo* Buysson 1887b:191. Holotype female; Syria (PARIS ?).
- mariae* Buysson 1887b:193. Syntype males; Israel: Tiberiad (PARIS ?).
- libussa* Balthasar 1953:259. Holotype male; Jordan: Wadi el Kelt (PRAGUE).\*\*
- znoikoi* Semenov 1967:170. Holotype male; Turkey: Araxes River (LENINGRAD). N. synonymy.\*
- tadzhica* Semenov and Nikol'skaya. Palaearctic: s USSR.
- tadzhica* Semenov and Nikol'skaya 1954:113. Holotype male; Tadzhik SSR: Kondara (LENINGRAD).\*
- tafnensis* Lucas. Palaearctic: North Africa.
- tafnensis* Lucas 1849:304. Lectotype female (desig. Bohart herein); Algeria (PARIS). (*bihamata* group).\*
- vafra* Mocsáry 1914:21. Holotype female; Morocco (BUDAPEST).\*
- taihorina* Mocsáry. Oriental: Taiwan.
- taihorina* Mocsáry 1913b:617. Holotype male; Taiwan: Taihorina (BUDAPEST). (*ignita* group).\*

*taiwana* Tsuneki. Oriental: Taiwan.

*taiwana* Tsuneki 1970b:7. Holotype male; Taiwan: Hengchun (OSAKA). (*capitalis* group).

*takasago* Tsuneki. Oriental: Taiwan.

*takasago* Tsuneki 1963a:4. Syntype females; Taiwan (TSUKUBA). (*smaragdula* group).

*takeuchii* Tsuneki. Oriental: Taiwan.

*takeuchii* Tsuneki 1950:76. Holotype female; Taiwan: Horisha (OSAKA).

*taliiba* Mocsáry. Oriental: Taiwan, Hong Kong, Laos, Viet Nam.

*taliiba* Mocsáry 1913b:616. Holotype female; Taiwan: Taihorinsho (BUDAPEST). (*splendidula-senegalensis* group).\*

*tamara* Semenov. Palaearctic: sw USSR.

*tamara* Semenov 1967:165. Holotype male; Armenian SSR: Yelisavetpol, Kirovabad (LENINGRAD). (*splendidula* s.s. group).\*

*tamerlana* Mocsáry. Palaearctic: ne India, Nepal.

*tamerlana* Mocsáry 1912b:551. Holotype male; India: Simla Hills (BUDAPEST). (*ignita* group).\*

*maharani* Mocsáry 1912b:553. Holotype female; India Sikkim (BUDAPEST).\*

*kali* Mocsáry 1912b:553. Holotype female; India: Sikkim (BUDAPEST).\*

*tantilla* Linsenmaier. Palaearctic: North Africa (Tunisia, Algeria).

*tantilla* Linsenmaier 1968:74. Holotype female; Tunisia (LUZERN). (*succincta-leachii* group).

*tasmaniaca* Mocsáry. Australian: se Australia.

*tasmaniaca* Mocsáry 1889:563. Holotype male; Australia: Tasmania (KRAKOW ?). (*smaragdula* group).

*tatiana* Semenov. Palaearctic: s USSR.

*tatiana* Semenov 1967:172. Holotype female; Kazakh SSR: Baigakum (LENINGRAD). (*maculicornis* group).\*

*tecta* Edney. Afrotropical: South Africa, Zimbabwe.

*tecta* Edney 1954a:601. Holotype male; Zimbabwe: Melsetter (Malopos on specimen) (CAPE TOWN). (*wahlbergi* group).\*

*tedshensis* Linsenmaier. Palaearctic: s USSR.

*tedshensis* Linsenmaier 1968:60. Holotype male; Turkmen SSR: Tedzhen (LUZERN). (*pulchella* group).

*tekensis* Semenov. Palaearctic: s USSR.

*tekensis* Semenov 1892a:75. Type ?; USSR: 'Transcaspia' (Mus. ?).

*temporalis* Buysson. Palaearctic: North Africa.

*temporalis* Buysson (In André) 1896:735. Holotype male; Algeria: Laghouat (PARIS). (*pallidicornis* group).\*



*tenella* Mocsáry. Palaearctic: s USSR.

*tenella* Mocsáry 1889:197. Holotype female; USSR: 'Caucasus' (KRAKOW ?). (*millenaris* group).

*tensa* Bohart. Nearctic: sw USA, nw Mexico.

*tensa* Bohart 1964:230. Holotype male; USA: Arizona, 15 mi n Yuma (DAVIS). (*propria* group).\*

*tenuicornis* Taylor. Nearctic: w USA, sw Canada, nw Mexico.

*tenuicornis* Taylor 1924:327. Holotype female; USA: Oregon, Harney Co., Steens Mts. (SAN FRANCISCO). (*tenuicornis* group).\*

*tenuis* Bohart. Palaearctic: s USSR.

*tenuicornis* Semenov 1967:174. Holotype female; Turkmen SSR: Imam- Baba (LENINGRAD). Nec Taylor 1924.\*

*tenuis* Bohart. N. repl. name for *tenuicornis* Semenov 1967. (*varidens* group).

*tesserops* Bohart. Afrotropical: Ethiopia to South Africa.

*tesserops* Bohart 1988d:289. Holotype male; Ethiopia: Sagan-Omo, Cashel (GENOA). (*splendidula-senegalensis* group).

*tetragona* Mocsáry. Afrotropical: w Africa.

*tetragona* Mocsáry 1914:28. Holotype male; 'W. Africa' (LONDON). (*comparata-gibba* group).\*

*thakur* Mocsáry. Oriental: w India to Taiwan.

*thakur* Mocsáry 1913a:22. Lectotype male (desig. Bohart 1986b); Burma: Tenasserim (BUDAPEST). (*smaragdula* group).\*

*thalia* Nurse. Palaearctic: Pakistan.

*thalia* Nurse 1903b:41. Syntype male, female; Pakistan: Quetta (Mus. ?).

*tianschanica* Semenov. Palaearctic: s USSR.

*tianschanica* Semenov 1967:171. Holotype female; Kirghiz SSR: near Przhevalsk (LENINGRAD). (*ignita* group).\*

*tibetana* Mocsáry. Palaearctic: Tibet.

*tibetana* Mocsáry 1914:43. Lectotype male (desig. Bohart herein); Tibet (LONDON). (*ignita* group).\*

*tibiarum* Zimmermann. Afrotropical: Madagascar.

*tibiarum* Zimmermann 1961b:311. Holotype female; Madagascar: Bekily (PARIS).\*

*tingitana* Bischoff. Palaearctic: Spain, Morocco.

*tingitana* Bischoff 1935:16. Holotype female; Morocco: Asni (BERLIN). (*emarginatula* group).

*tisiphone* Edney. Afrotropical: Zimbabwe.

*tisiphone* Edney 1954a:562. Holotype female; Zimbabwe: Belingue (CAPE TOWN). (*comparata-gibba* group).\*

*megaera* Edney 1954a:565. Holotype male; Zimbabwe: Gwanda (CAPE TOWN). N. synonymy.\*

*rubescens* Edney 1954a:582. Holotype male; Zimbabwe: Salisbury (CAPE TOWN). Nec Radoszkowski 1880. N. synonymy.\*

*tragica* Semenov. Palaearctic: sw USSR.

*tragica* Semenov 1967:171. Holotype female; Armenian SSR: Daghestan, Dzhurmud (LENINGRAD). (*ignita* group).\*

*trautmanni* (Brauns). Afrotropical: South Africa.

*trautmanni* (Brauns) 1928:385. (*Tetrachrysis*). Lectotype male (desig. Bohart herein); South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*oxygona* group).\*

*pretoria* Edney 1954a:606. (*trautmanni* ssp.). Holotype male; South Africa: Transvaal Prov., Pretoria (PRETORIA-TM).\*

*tripartita* Aaron. Nearctic: USA (widespread); Neotropical: s Mexico to Venezuela.

*tripartita* Aaron 1885:238. Holotype female; USA: Arizona (PHILADELPHIA). (*comparata-gibba* group).\*

*columbiaca* Mocsáry 1912b:570. Holotype female; Colombia (BUDAPEST). N. synonymy.\*

*trisinuata* Mocsáry. Palaearctic: s USSR.

*trisinuata* Mocsáry 1889:288. Holotype female; Uzbek SSR: Tashkent (KRAKOW ?).

*tschadensis* Linsenmaier. Palaearctic: Chad.

*tschadensis* Linsenmaier 1968:63. Holotype female; Chad (LUZERN). (*succincta* s.s. group).

*tsingtauensis* (Bischoff). Palaearctic: China.

*tsingtauensis* (Bischoff) 1910:482. (*Tetrachrysis*). Holotype female (not male); China: Kiautschau, Tsingtau (BERLIN). (*ignita* group).\*

*tularensis* Bohart. Nearctic: w USA (California).

*tularensis* Bohart 1962:373. Holotype male; USA: California Tulare Co., Woodlake (SAN FRANCISCO). (*smaragdula* group).\*

*tumens* Buysson. Palaearctic: North Africa, Middle East.

*tumens* Buysson (In André) 1894:344. Holotype male; Algeria (Mus. ?). (*hydropica* group).

*tunisiana* Linsenmaier. Palaearctic: North Africa.

*tunisiana* Linsenmaier 1959a:175. Holotype female; Tunisia (LUZERN). (*cerastes* group).

*turceyana* Linsenmaier. Palaearctic: Turkey.

*turceyana* Linsenmaier 1959a:105. Holotype female; Turkey: Uludag (LUZERN). (*pulchella* group).

*turcomana* Semenov. Palaearctic: s USSR.

- turcomana* Semenov 1954a:117. Lectotype male (desig. Bohart herein); Turkmen SSR: Imam-Baba (LENINGRAD). (*ebrenbergi* group).\*
- turneriella* Bohart. Afrotropical: South Africa.
- turneri* Edney 1952:434. Lectotype female (desig. Bohart herein); South Africa: Cape Prov., Matjiesfontein (LONDON). Nec Mocsáry 1914.\*
- turneriella* Bohart. N. repl. name for *turneri* Edney 1952.
- ugandae* Bohart. Afrotropical: Uganda.
- ugandae* Bohart 1988d:290. Holotype male; Uganda: Katona (BUDAPEST). (*maindroni* group).\*
- ugandana* Mocsáry. Afrotropical: Uganda to South Africa.
- confluens* Mocsáry 1890:56. Holotype male; South Africa: Cape Prov. (BUDAPEST). Nec Dahlbom 1845.\*
- ugandana* Mocsáry 1914:32. Holotype female; Uganda: Tero Forest (LONDON). (*ignita* group).\*
- uljanini* Radoszkowski. Palaearctic: s USSR to Siberia.
- uljanini* Radoszkowski 1877:22. Lectotype female (desig. Bohart herein); Uzbek SSR: Tashkent desert, Sarafschan Valley (MOSCOW). (*ignita* group).\*
- sarafschana* Mocsáry 1889:437. Holotype female; Uzbek SSR: Sarafschan Valley (KRAKOW ?). N. synonymy.
- sickmanni* Mocsáry 1893:228. Holotype female; Russian SFSR: E. Siberia (HAMBURG, destroyed). N. synonymy.
- mesembrina* Semenov and Nikol'skaya 1954:130. Holotype female; Tadzhik SSR: Kondara (LENINGRAD). N. synonymy.\*
- undata* Dahlbom. Palaearctic: Sweden.
- undata* Dahlbom 1831:29. Syntype females; Sweden (Mus. ?). Unknown species.
- undulella* Mocsáry. Oriental: Burma.
- undulella* Mocsáry 1912b:555. Holotype male; Burma: Mandalay (BUDAPEST).\*
- urakensis* Linsenmaier. Palaearctic: Pakistan.
- urakensis* Linsenmaier 1968:60. Holotype male; Pakistan: Urak (Beluchistan) (LUZERN). (*pulchella* group).
- urana* Nurse. Palaearctic: Pakistan.
- urana* Nurse 1904:22. Lectotype female (desig. Bohart herein); Pakistan: Quetta (LONDON). (*succincta* s.s. group).\*
- vachali* Buysson. Palaearctic: Tunisia.
- vachali* Buysson 1900:140. Lectotype female (desig. Bohart herein); Tunisia: Sfax (PARIS). (*millenaris* group ?).\*

*vagabunda* Bohart. Nearctic: w USA.

*vagabunda* Bohart 1964:225. Holotype male; USA: California: Yolo Co., Woodland (DAVIS). (*comparata-coloradica* group).\*

*vahli* Dahlbom. Palaearctic: Tunisia.

*vahli* Dahlbom 1854:301. Holotype; Tunisia (COPENHAGEN). (*pulchella* group).

*valerii* Semenov. Palaearctic: s USSR.

*valerii* Semenov 1910 (1909):223. Lectotype male (desig. Bohart herein). Kazakh SSR: Syr-Daria, Dzhulek (LENINGRAD). (*smaragdula* group).\*

*valesiana* Frey-Gessner. Palaearctic: s Europe, North Africa.

*valesiana* Frey-Gessner 1887:55. (*sybarita* var.). Syntypes; Switzerland (GENEVA ?). (*graelisii* group).

*tenera* Mocsáry 1893:229. (*valesiana* var.). Holotype female; Algeria: Biskra (VIENNA).

*valida* Mocsáry. Palaearctic: central Europe.

*valida* Mocsáry 1912b:589. (*ignita* var.). Lectotype female (desig. Móczár 1965); Hungary: Budapest (BUDAPEST). (*ignita* group).\*

*illustris* Stocklein 1950:283. Holotype female; Germany: Bavaria (Mus. ?).

*valkeilai* Linsenmaier. Palaearctic: central Europe.

*valkeilai* Linsenmaier 1968:93. Holotype female; Afghanistan: Sarekanda (LUZERN). (*comparata* s.s. group).

*vansoni* (Brauns). Afrotropical: South Africa.

*vansoni* (Brauns) 1928:388. (*Hexachrysis*). Lectotype male (desig. Bohart herein). South Africa: Cape Prov., van Rhynsdorp (PRETORIA-TM). (*wahlbergi* group).\*

*varia* Mocsáry. Neotropical: Bolivia, Uruguay, Argentina.

*varia* Mocsáry 1914:57. Holotype female; Bolivia (LONDON). (*varia* group).\*

*variana* Buysson. Palaearctic: s USSR.

*variana* Buysson 1901:103. Holotype female; Turkmen SSR: Imam-Baba (VIENNA). (*succincta* s.s. group).

*varicolor* Smith. Palaearctic: China.

*varicolor* Smith 1874b:462. Holotype male; China: Foochow (LONDON). (*ignita* group).\*

*varidens* Abeille. Palaearctic: s Europe, North Africa, Middle East.

*varidens* Abeille 1878:6. Lectotype female (desig. Kimsey 1986c); France: Montpellier (PARIS). (*varidens* s.s. group).\*

*eva* Balthasar 1951:4. (*varidens* var.). Holotype female; Yugoslavia: Dalmatia, Split (PRAGUE).

*klio* Balthasar 1953:257. Holotype female; Afghanistan: Schau, Kokscha-Tal, Badakschan Mts. (PRAGUE).



*sillensis* Linsenmaier 1987:146. (*varidens* ssp.). Holotype female; Turkey: Konya (LUZERN).  
*atlasia* Linsenmaier 1987:146. (*varidens* ssp.). Holotype male; Morocco: Mt. Atlas (LUZERN).

*variegata* Olivier. Palaearctic: Europe, w Asia, North Africa.

*variegata* Olivier 1790:677. Type ?; s France (Mus. ?). (*smaragdula* group).

*sexdentata* Christ 1791:404. Type ?; (Mus. ?). N. synonymy.

*micans* Rossi 1792:133. Type ?; locality ? (Mus. ?).

*sexdentata* Block 1799:106. Type ?; Germany: Plau Valley (Mus. ?). Nec Christ 1791. N. synonymy.

*bistridentata* Block 1799:119. Type ?; Germany: Plau Valley (Mus. ?). N. synonymy.

*similis* Lepeletier 1806:126. Holotype male; France (PARIS ?).

*caucasica* Radoszkowski 1876a:108. Holotype; USSR: 'Caucasus' (KRAKOW ?).

*balcanica* (Trautmann) 1926a:11. (*Hexachrysis sexdentata* var.). Lectotype male (desig. Bohart herein); Yugoslavia: Hercegovina (BERLIN).\*

*hispanica* (Trautmann) 1926a:11. (*Hexachrysis sexdentata* var.). Holotype male; Spain: Castile (BERLIN).\*

*rhodicypria* Linsenmaier 1959a:164. (*sexdentata* ssp.). Holotype male; Greece: Rhodes Isl. (LUZERN).

*variipes* Mocsáry. Palaearctic: India, Sudan.

*variipes* Mocsáry 1911b:467. Lectotype male (desig. Bohart 1986b); India: Lonauli (BUDAPEST).\*

*anthea* Zimmermann 1963:413. Lectotype male (desig. Bohart herein); Sudan: Khor Musa, Wadi Halfa (VIENNA). N. synonymy.\*

*vaulogeri* Buysson. Palaearctic: Algeria.

*vaulogeri* Buysson (In André) 1895:572. Lectotype female (desig. Bohart herein); Algeria (PARIS). (*varidens* s.s. group).\*

*venusta* Cresson. Nearctic: w USA, Mexico; Neotropical: s to Costa Rica.

*venusta* Cresson 1865b:311. Holotype male; USA: Colorado (PHILADELPHIA). (*venusta* group).\*

*freygessneri* Gribodo 1879:333. Holotype female; USA: Texas (GENOA).\*

*presidialis* Mocsáry 1912b:565. Holotype male; Mexico: Chihuahua, Presidio (BUDAPEST).\*

*venustella* Bohart. Nearctic: w USA.

*venustella* Bohart 1964:235. Holotype male; USA: California, Davis (DAVIS). (*venusta* group).\*

*ver* Semenov. Palaearctic: s USSR.

*ver* Semenov 1967:162. Holotype male; Turkmen SSR: Kizyl-Arvat (LENINGRAD). (*pulchella* group).\*

*verae* Semenov. Palaearctic: s USSR.

- verae* Semenov 1967:175. Holotype female; Georgian SSR: Lagodechi (LENINGRAD). (*taczanovskii* group).\*
- vergiliana* Semenov. Palaearctic: s USSR.
- vergiliana* Semenov 1967:164. Holotype male; Turkmen SSR: Kizyl- Arvat (LENINGRAD). (*maculicornis* group).\*
- verboeffi* Linsenmaier. Palaearctic: Greek Isls.
- verboeffi* Linsenmaier 1959a:119. Holotype male; Greece: Corfu Isl. (LUZERN). (*succincta-leachii* group).
- verna* Dahlbom. Palaearctic: s Europe, Turkey, Middle East, s USSR.
- verna* Dahlbom 1854:285. Holotype female; Greece: Rhodes Isl. (COPENHAGEN). (*comparata* s.s. group).
- orientis* (Trautmann) 1926a:7. (*Pseudochrysis verna* var.). Type ?; Turkey: Smyrna (BERLIN).
- verudens* Mocsáry. Afrotropical: e Africa.
- verudens* Mocsáry 1914:33. Holotype female; 'Africa oriental' (BUDAPEST). (*ignita* group?).\*
- vesper* Semenov. Palaearctic: s USSR.
- vesper* Semenov 1967:172. Holotype male; Kazakh SSR: Baigakum (LENINGRAD).\*
- vibex* Bohart. Nearctic: w USA, n Mexico.
- vibex* Bohart 1964:231. Holotype male; USA: Arizona, Portal (DAVIS). (*propria* group).\*
- vicaria* Mocsáry. Oriental: Taiwan.
- vicaria* Mocsáry 1913a:11. Lectotype male (desig. Bohart 1986b); Taiwan: Taihorina (BUDAPEST). (*smaragdula* group).\*
- victrix* Edney. Afrotropical: Zimbabwe, South Africa.
- victrix* Edney 1954b:646. Lectotype male (desig. Bohart herein); Zimbabwe: Cashel (CAPE TOWN). (*wahlbergi* group).\*
- villosula* Bohart. Nearctic: Mexico (Zacatecas).
- villosula* Bohart 1985b:95. Holotype male; Mexico: Zacatecas, Nochistlan (DAVIS). (*comparata-gibba* group).\*
- violaceiventris* Mocsáry. Oriental: Indonesia, Celebes.
- violaceiventris* Mocsáry 1899:489. Holotype female; Indonesia: Celebes, Patunuang (BUDAPEST). (*oculata* group).\*
- violacuna* Bohart. Nearctic: w USA (and Florida).
- violacuna* Bohart 1982:134. Holotype male; USA: Utah, Rich Co., Bear Lake (DAVIS). (*ignita* group).\*
- violenta* Linsenmaier. Palaearctic: Pakistan, n India, Nepal, Tibet.
- violenta* Linsenmaier 1968:97. Holotype female; Pakistan: Lulu Sar (LUZERN). (*ignita* group).

*ultramonticola* Linsenmaier 1968:97. (*violenta* ssp.). Holotype female; Tibet: Everest region, Tropde 11 000ft (LONDON).

*virens* Christ. Palaearctic: Europe.

*virens* Christ 1791:405. Type ?; Europe (Mus. ?). Unknown species.

*virgiliana* Semenov. Palaearctic: s USSR.

*virgiliana* Semenov 1967:164. Holotype male; Georgian SSR: Lagodechi (LENINGRAD). (*maculicornis* group).\*

*viridicyanea* Giebel. Palaearctic: Germany.

*viridicyanea* Giebel 1862:319. Type ?; Germany (Mus. ?). Unknown species.

*viridicyanea* Linsenmaier. Palaearctic: Egypt, Middle East.

*viridicyanea* Linsenmaier 1968:63. Holotype female; Egypt: Cairo (ZURICH). Nec Giebel 1862. (*succincta* s.s. group).

*viridimaculata* (Bischoff). Palaearctic: s Spain.

*viridimaculata* (Bischoff) 1910:482. (*Tetrachrysis*). Holotype female (not male); Spain: Madeira Isl. (BERLIN). (*ignita* group).\*

*viridirosea* Linsenmaier. Palaearctic: Middle East, Egypt.

*viridirosea* Linsenmaier 1959a:143. Holotype female; Jordan: Jericho (LUZERN). (*pallidicornis* group).

*viridis* Olivier. Neotropical: French Guiana.

*viridis* Olivier 1790:672. Type ?; French Guiana. Unknown species.

*viridissima* Klug. Palaearctic: North Africa, Middle East; Afrotropical: Nigeria, Tanzania.

*viridissima* Klug 1845:Table 45 Fig. 11. Type ?; Egypt (BERLIN ?). (*viridissima* group).

*fasciolata* Klug 1845:Table 45 Fig. 12. Type ?; Egypt (BERLIN ?).

*praestigiatrix* Balthasar 1953:270. Holotype female; Jordan: Jericho (PRAGUE).

*euridice* Balthasar 1953:271. (*praestigiatrix* ssp.). Holotype female; Jordan: Wadi el Kelt (PRAGUE).

*viridula* Linnaeus. Palaearctic: Eurasia.

*viridula* Linnaeus 1761:415. Lectotype male (desig. Morgan 1984); Europe (LONDON). (*viridula* group).

*thalassina* Gmelin 1790:2747. Type ?; Europe (destroyed).

*aurora* Christ 1791:405. Type ?; Europe (Mus. ?).

*edentula* Rossi 1792:133. Type ?; Italy: Tuscany (Mus. ?).

*dimidiata* Fabricius 1798:258. Type ?; France (PARIS ?).

*coronata* Spinola 1808:30. Syntypes; Italy: Liguria region (TURIN ?).

*ornata* Smith 1851:125. Holotype male; England: Bristol (lost ?).

*gemma* Abeille 1878:3. Lectotype male (desig. Kimsey 1986c); France: Meudon (PARIS).\*

*fenestrata* Marquet 1879:159. (*bidentata* var.). Type ?; France: Toulouse (Mus. ?).

*apicata* Uchida 1927:154. (*viridula* var.). Syntype male, female; Japan, Korea (HOKKAIDO).  
*afghana* Balthasar 1957:148. (*viridula* var.). Holotype female; Afghanistan: Sarakanda (PRAGUE).

*viroris* Bohart. Palaearctic: Germany.

*viridis* (Trautmann) 1926a:9. (*Tetrachrysis ruddii* var.). Lectotype female (desig. Bohart herein); W. Germany (BERLIN). Nec Olivier 1790.\*

*viroris* Bohart. N. repl. name for *viridis* Trautmann 1926a. (*ignita* group).

*vishnu* Mocsáry. Oriental: e India, Malaysia.

*vishnu* Mocsáry 1912b:557. Holotype female; India: Assam, Shillong (BUDAPEST). (*ignita* group).\*

*voiensis* Buysson. Afrotropical: Kenya.

*voiensis* Buysson 1906b:111. Holotype female; Kenya (PARIS). (*westermanni* group).\*

*volatilis* Smith. Palaearctic: China.

*volatilis* Smith 1874b:459. Holotype female; China: Shanghai (LONDON). (*ignita* group).\*

*wahlbergi* Dahlbom. Afrotropical: Sierra Leone and Zaire to South Africa.

*wahlbergi* Dahlbom 1845:14. Lectotype male (desig. Bohart herein); South Africa: Natal Prov., 'Port Natal' (STOCKHOLM). (*wahlbergi* group).\*

*wasbaueri* Bohart. Nearctic: widespread in USA and n Mexico.

*wasbaueri* Bohart 1962:372. Holotype male; USA: Texas, Bexar Co., Ft. Sam Houston (SAN FRANCISCO). (*smaragdula* group).\*

*westerlundi* Linsenmaier. Palaearctic: Finland.

*westerlundi* Hellen 1919:211. (*succincta* ab.). Type ?; Finland. Invalid name.

*nordstroemi* Hellen 1919:212. (*succincta* ab.). Type ?; Finland. Invalid name.

*westerlundi* Linsenmaier 1959a:113. Type based on *westerlundi* Hellen 1919. (*succincta* group).

*westermanni* Dahlbom. Afrotropical: central Africa to South Africa.

*westermanni* Dahlbom 1854:232. Holotype male (not female); Guinea (COPENHAGEN). (*westermanni* group).\*

*arcifera* (Bischoff) 1910:466. (*Tetrachrysis*). Holotype male; South Africa: Transvaal Prov., Lydenburg (BERLIN). N. synonymy.\*

*frontiplana* (Bischoff) 1910:469. (*Tetrachrysis*). Holotype male; Guinea (BERLIN). N. synonymy.\*

*simillima* (Bischoff) 1910:470. (*Tetrachrysis frontiplana* var.). Holotype male; Mozambique: Delagoa Bay (BERLIN). Nec Gribodo 1879.\*

*aequalis* (Bischoff) 1910:470. (*Tetrachrysis*). Holotype male; Tanzania (BERLIN). N. synonymy.\*

*togoana* (Bischoff) 1910:471. (*Tetrachrysis*). Holotype female (not male); Togo (BERLIN). N. synonymy.\*



*wollmanni* Mocsáry. Palaearctic: s USSR.

*wollmanni* Mocsáry 1909:4. Lectotype female (desig. Bohart 1986b); Kazakh SSR: Syrdaria, Baigakum (BUDAPEST). (*graeli* group).\*

*wroughtoni* Buysson. Oriental: India, Indonesia.

*wroughtoni* Buysson 1896:469. Lectotype female (desig. Bohart herein); India: Bombay, Poona (PARIS). (*capitalis* group).\*

*jacobsoni* Buysson 1908b:125. Lectotype female (desig. Bohart herein); Java: Batavia (PARIS). N. synonymy.\*

*javana* Mocsáry 1911b:468. Holotype female; Java (BUDAPEST). N. synonymy.\*

*whiteheadi* Bohart. Afrotropical: South Africa.

*whiteheadi* Bohart 1988d:291. Holotype female; South Africa: Cape Prov., Jonkershoek (CAPE TOWN).

*xanthocera* Klug. Palaearctic: North Africa, Middle East, s USSR.

*xanthocera* Klug 1845:Table 45 Fig. 5. Holotype male; Egypt: Alexandria (BERLIN). (*comparata* s.s. group).\*

*barrei* Radoszkowski 1891:194. Holotype male; Turkmen SSR: Serakhs (BERLIN).\*

*lucinda* Nurse 1903a:12. Lectotype male (desig. Bohart herein); Pakistan (LONDON). N. synonymy.\*

*xerophila* Bohart. Nearctic: USA (s California).

*xerophila* Bohart 1964:226. Holotype male; USA: California, San Diego Co., Borrego Valley (DAVIS). (*comparata-coloradica* group).\*

*xysa* Bohart. Australian: e Australia.

*xysa* Bohart 1985a:52. Holotype female; Australia: Queensland, Biggenden (CANBERRA). (*smaragdula* group).\*

*yallingupia* (Linsenmaier). Australian: w Australia.

*yallingupia* (Linsenmaier) 1982:342. (*Hexachrysis*). Holotype female; Australia: Western Australia: Yallingup (LONDON). (*smaragdula* group).\*

*yoshikawai* Tsuneki. Oriental: Thailand.

*yoshikawai* Tsuneki 1961:371. Holotype female; Thailand (OSAKA). (*capitalis* group).

*zaitzevi* Semenov. Palaearctic: s USSR.

*zaitzevi* Semenov 1967:168. Holotype male; Georgian SSR: Telavi (LENINGRAD). (*ignita* group).\*

*zanderi* (Trautmann). Palaearctic: Turkey.

*zanderi* (Trautmann) 1921:32. (*Tetrachrysis*). Type ?; Turkey (BERLIN ?).

*zanzibarica* Mocsáry. Afrotropical: Tanzania.

*zanzibarica* Mocsáry 1914:35. Holotype male (not female); Tanzania: Zanzibar (LONDON). (*comparata-gibba* group).\*

*zarudniella* Semenov. Palaearctic: s USSR.

*zarudniella* Semenov 1967:165. Holotype female; Kazakh SSR: Kyzyl-kum desert (LENINGRAD).\*

*zobeida* Buysson. Palaearctic: Egypt, Middle East, Iran.

*zobeida* Buysson 1896:474. Holotype female; Aden (PARIS). (*maculicornis* group).\*

*zonata* Dahlbom. Palaearctic: Turkey.

*zonata* Dahlbom 1854:244. Syntypes; Turkey (BERLIN).

*zuluana* Mocsáry. Afrotropical: South Africa.

*zuluana* Mocsáry 1889:358. Holotype male; South Africa: Natal Prov., 'Caffraria' (VIENNA). (*zuluana* group).\*

*niridulaeformis* (Bischoff). 1910:599. (*Tetrachrysis*). Holotype female; South Africa: Cape Prov. (BERLIN). N. synonymy.\*

*zylla* Bohart. Australian: e Australia.

*zylla* Bohart 1985a:52. Holotype male; Australia: New South Wales, Waiweva (CANBERRA). (*smaragdula* group).\*

### *Chrysura* Dahlbom (Figs 115 and 116)

*Chrysura* Dahlbom 1845:6. Type: *Chrysis austriaca* Fabricius 1804:173. Desig. by Bodenstein 1939b:125.

*Monochrysis* Lichtenstein 1876:27. Type: *Chrysis hybrida* Lepeletier 1806:128. Desig. by Ashmead 1902:226.

*Olochrysis* Lichtenstein 1876:27. Type: *Chrysis aerata* Dahlbom 1854:129 (= *Chrysis trimaculata* Förster 1853:307). Desig. by Ashmead 1902:226.

*Holochrysis* Rye 1878:134. Invalid emendation of *Olochrysis*.

*Conochrysis* Haupt 1956:37. Type: *Chrysis refulgens* Spinola 1806:8. Orig. desig.

*Arctochrysis* Haupt 1956:72. Type: *Chrysis austriaca* Fabricius 1804:173. Orig. desig.

*Taeniochrysis* Haupt 1956:72. Type: *Chrysis dichroa* Dahlbom 1854:146. Orig. desig.

*Selenochrysis* Haupt 1956:72. Type: *Chrysis candens* Germar 1817:260. Orig. desig.

### Generic diagnosis

Face relatively flat without medial zone of cross ridging but sometimes with medial microreticulation; no TFC (Fig. 116a); malar space usually 2 MOD or more; mandible with subapical tooth; mid ocellus not lidded; basal flagellomeres F-II–V of male often bulging ventrally (Fig. 116g); pronotum not longer and usually shorter than scutellum, lateral depression shallow and barely indicated; mesopleuron with scrobal sulcus and episternal sulcus; propodeal angle subtriangular; fore wing discoidal cell complete; T-II longitudinal ridge sometimes indicated but not sharp; T-III pit row not deeply

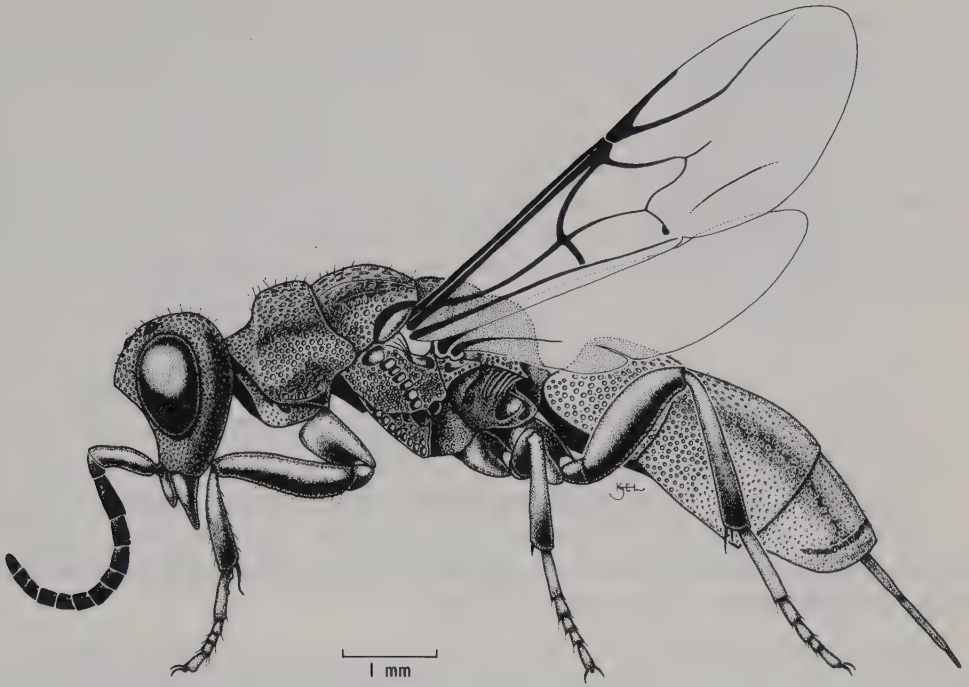


Fig. 115. *Chrysura austriaca*, female.

sunken and often quite weak (Fig. 116*b*), apical rim evenly rounded, truncate or indented medially. Male terminalia (Fig. 116*b*, i): S-VIII subtriangular; gonocoxa broad or narrowly tapering apically, inner margin often angulate subapically (Fig. 116*c*, d); cuspis long, digitus slender and shorter than cuspis; aedeagus slender and acute apically.

### Hosts

All known hosts are bees of the family Megachilidae (Hicks 1934). Most records are of the widespread and essentially Holarctic genus *Osmia* (Linsenmaier 1959*a*, Krombein 1967), which ordinarily nest in decaying logs or in the ground. Horning and Bohart (in Bohart and Kimsey) (1982) recorded additional twig-nesting host genera for *sagmatis*, a relatively abundant species in western North America. These were *Ashmeadiella*, *Chelostoma*, *Hoplitis*, *Anthocopa*, and *Proteriades*.

### Distribution

*Chrysura* is essentially a Holarctic genus with 102 species, 91 of them Palearctic. There is a single Afrotropical species (*schultzei*), and the remainder are Nearctic.

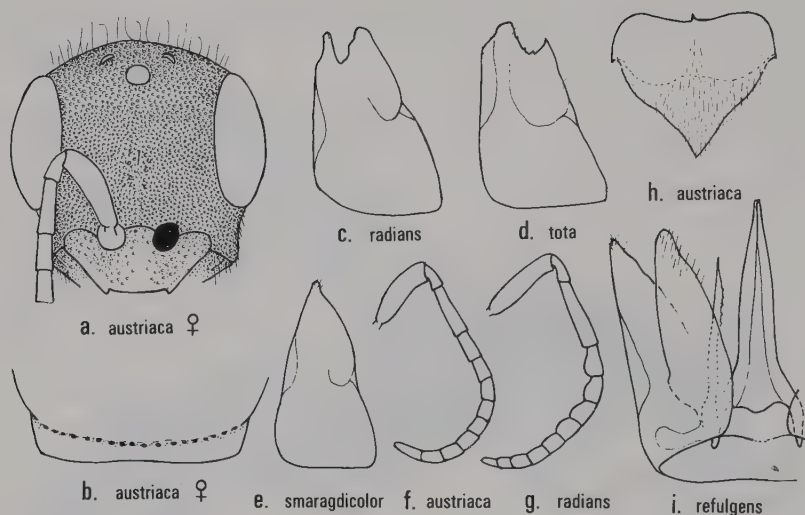


Fig. 116. *Chrysura*. (a) face; (b) T-III, dorsal;  $\zeta$ -(e) gonocoxal apex; (f), (g) antenna, lateral; (h) S- VIII; and (i) genital capsule, ventral. Male, except as indicated.

*Chrysura martia*, based on a specimen with red abdomen from Quebec, Canada, is probably not an endemic but may have been introduced from Europe in earthen ballast from ships. We have not been able to locate it.

## Discussion

*Chrysura* is the second largest genus in the Chrysidini. An important diagnostic feature is the relatively flat face without transverse microridging, but sometimes with a little medial microreticulation (Fig. 116a). In addition, there is no TFC, no teeth on T-III, and the lateral hollow on the pronotum is weak or only slightly indicated.

We have divided the genus into five species groups, in four of which (*radians*, *dichroa*, *cuprea*, *candens*) male F-II-V (especially F-II-IV) are asymmetrical (knobby) beneath (Fig. 116g). Linsenmaier (1959a) included *Chrysura* in *Chrysis* and separated the first three groups from the *austriaca* group on the base of the male antennae. Since the 'knobby' antennal character crops up in several *Chrysis* groups, as well as *Spintharina* and *Ceratochrysis*, we do not place as much weight on it as did Linsenmaier. Furthermore, as an intergrade we have a male *cirtana* (determined by Mocsáry) in which F-II-V are slightly asymmetrical. This species, along with *candens*, was put in the *austriaca* group by Linsenmaier, but we place them in a separate *candens* group.

The 10 Nearctic species of *Chrysura* are all in the *radians* group. Although they do not have the red abdomen found in many of the Palearctic species, and the metanotum is not produced, we do not think this is justification for a separate group. A key to



these species was given by Horning and Bohart (in Bohart and Kimsey 1982).

The name of the largest group of *Chrysura* was informally proposed as *pustulosa* by Linsenmaier (1959a). Since *pustulosa* Abeille (1878) has been synonymized under *radians* Harris (1776) by Morgan (1984), we are now using *radians* as the name for the group.

Altogether, we have been able to study authenticated specimens (mainly types) of about 80 percent of the species we have listed. However, our studies were made at different times and places, so that direct comparisons were not possible. Therefore, there may well be some undetected synonymy in the species studied and there is likely to be some additional synonymy among those which we have not been able to see.

### KEY TO SPECIES GROUPS OF CHRYSURA

- 
1. Pronotum and scutum golden; scutellum, metanotum (and pleuron) contrastingly green to blue; male F-II-V only slightly asymmetrical (knobbed beneath); malar space more than 2 MOD; metanotum hardly bulging  
*candens* group, p.484  
 Pronotum and/or scutum not differing strongly in coloration from scutellum and metanotum, other characters various 2

---

  2. Pronotal dorsum mostly coppery-red and either contrasting strongly in colour with metanotum and pleuron *or* body essentially all red; male F-II-V asymmetrical 3  
 Pronotal dorsum not mostly coppery-red, sometimes a little coppery but not contrasting with colour of metanotum and pleuron; male F-II-V various 4

---

  3. Metanotum strongly produced; body sometimes essentially all red  
*cuprea* group, p.484  
 Metanotum at most a little bulging; body not mostly red *dichroa* group, p.485

---

  4. Male F-II-V plainly asymmetrical (Fig. 116g), flagellum after F-I sometimes reddish, especially in males; malar space sometimes less than 2 MOD; metanotum often somewhat produced *radians* group, p.485  
 Male F-II-V symmetrical (Fig. 116f), flagellum not reddish; malar space more than 2 MOD (Fig. 116a); metanotum not produced *austriaca* group, p.483

---

#### *Chrysura austriaca* group

**Diagnosis.** Male flagellomeres symmetrical (Fig. 116f); malar space more than 2 MOD (Fig. 116a); clypeal apex at most weakly concave; head purple to green at least

on vertex; pronotal dorsum sometimes coppery but not coppery-red; scutum or at least its midsection not contrasting in colour with metanotum, propodeum, and pleuron; metanotum rather evenly convex.

**Discussion:** Species listed in this group number 24. All but the South African *schultzei* are Palaearctic. The simple male antenna led Linsenmaier (1959a) to put the *austriaca* group in his Division Simplicicornia, and separate it from the *radians-cuprea-dichroa* groups, which he put in his Division Incisicornia. As stated in our discussion under the genus *Chrysura*, we do not agree with this arrangement.

Several variations in this group are worth noting. Among the species with which we are familiar, *getula*, *umbra*, and *schultzei* have the abdomen basically blue to green instead of red. S-II spots are not defined in *simplex* or *cyrenaica*; are nearly black in *austriaca*, *schultzei*, *umbra*, *getula*, and *hybrida*; or are green in *pyrogaster* and *ignifrons*. In *schultzei* there is considerable microreticulation toward the middle of the scapal basin. Females of *austriaca*, *pyrogaster*, and *simplex* have the face unusually broad as measured across the mandible base.

Two generic names have been used for species in this group: *Monochrysis* Lichtenstein (1876) for *hybrida*, and *Arctochrysis* Haupt (1956) for *austriaca*.

### *Chrysura candens* group

**Diagnosis.** Male flagellum (based on a male of *cirtana*) slightly asymmetrical; malar space more than 2 MOD; vertex blue to purple; pronotum and scutum coppery to coppery-red but contrasting in colour with blue to purple scutellum, metanotum, propodeum, pleuron and legs; metanotum rather evenly convex.

**Discussion.** On the basis of thoracic markings these five species might be put in the *dichroa* group but the latter has the scutellum coloured like the scutum, whereas the *candens* group has it like the metanotum. Haupt (1956) presented *Selenochrysis* as a new subgenus for *candens*.

### *Chrysura cuprea* group

**Diagnosis.** Male F-II–V asymmetrical; malar space more than 2 MOD; clypeal apex at most weakly concave; head nearly all coppery-red; notum mostly coppery-red; metanotum and pleuron likewise or contrasting purple–blue–green; metanotum produced; T-III usually narrowed; terga and sterna bright red.

**Discussion:** Of the five species in this group, we have seen all but *agadirana*. Two of the species, *barbara* and *pruna*, are practically all coppery-red including the legs. In *cuprea* and *oraniensis* the metanotum, propodeum, pleuron, and legs are blue. An intermediate species is *agadirana*, with the thorax mostly coppery-red, but the legs blue. In *pruna* the metanotum is only moderately produced. The other species have it strongly and conically so. In *cuprea* T-III is very slightly deflected and double-edged

apically. This condition is much more pronounced in *oraniensis* and *agadirana*.

### *Chrysura dichroa* group

**Diagnosis.** Male F-II–V asymmetrical; malar space more than 2 MOD; clypeal apex at most weakly concave; head blue to green on vertex at least; pronotal dorsum all or nearly all coppery-red; scutum and scutellum mostly red; metanotum a little bulging or only slightly produced; metanotum, propodeum, and pleuron mostly or all purple to green.

**Discussion.** Of the 18 listed species, we have seen about two-thirds. Coloration is an important and relatively constant characteristic of the group. The sterna are usually extensively red (except *filiformis*), and the scapal basin is red (blue to purple and sharply red-gold margined above in *angusticollis*, *elzearii*, and *purpureifrons*). Haupt (1956) proposed the subgenus *Taeniochrysis* for *dichroa*.

### *Chrysura radians* group (= *pustulosa* group of Linsenmaier)

**Diagnosis.** Male F-II–V asymmetrical; malar space sometimes less than 2 MOD; clypeal apex at most weakly concave; head green to blue; notum mostly green to blue; metanotum often somewhat bulging or produced; gonocoxa sometimes emarginate apically (*bobarti*, *cobaltina*, *pacifica*, *radians*, *tota*).

**Discussion.** We list 48 species in this group. Except for the 10 Nearctic species, all are Palearctic. This is the only group of *Chrysura* in which some of the species have the malar space less than 2 MOD. We have noted this in *bactriana*, *barbata*, *desertorum*, *eos*, *erigone*, *inuitata*, *oshanini*, *pelopaeicida*, *sulcata*, and *varicornis*. In addition, these species do not have the sterna red, and some of them have the flagellum red in males, and a few females (*bactriana*, *eos*, *oshanini*, *varicornis*). Some of the same species have T-III apically deflected (*bactriana*, *eos*, *oshanini*, *sulcata*, *varicornis*). Others have the erect pubescence of the vertex uncharacteristically all pale (*eos*, *oshanini*, *pelopaeicida*). We separate the species with shortened malar space as the *varicornis* subgroup.

Secondly, the *genalis* subgroup has the body, including sterna, all blue to green (except *ottomana* with red terga) and the malar space more than 2 MOD. Included are the Nearctic species (except *inuitata*) and *foetiana*, *genalis*, *kashmirensis*, and *ottomana*. Thirdly, the *radians* subgroup has the sterna mostly bright coppery-red, and the malar space more than 2 MOD. Species known to us which fall in this subgroup are *desidiosa*, *djelma*, *graja*, *hirsuta*, *isabella*, *koma*, *osiris*, *radians*, *refulgens*, *rufiventris*, and *trimaculata*.

Two generic names have been applied to this group: *Olochrysis* Lichtenstein (1876) for *aerata* (= *trimaculata*), and *Conochrysis* Haupt (1956) for *refulgens*.

### Checklist of *Chrysura*

---

*affinis* (Lucas). Palearctic: North Africa.

*affinis* (Lucas) 1849:305. (*Chrysis*). Holotype male; Algeria: Oran (PARIS). (*austriaca*

group).\*

*agadirana* (Linsenmaier). Palaearctic: Morocco.

*agadirensis* (Linsenmaier) 1959a:84. (*Chrysis*). Holotype female; Morocco: Agadir (LUZERN). Nec Buysson 1911.

*agadirana* (Linsenmaier) 1968:48. (*Chrysis*). Repl. name for *agadirensis* Linsenmaier 1959a. (*cuprea* group).

*alticola* (Semenov). Palaearctic: Mongolia.

*alticola* (Semenov) 1912:190. (*Chrysis petri* var.). Holotype female; Mongolia (LENINGRAD). (*radians* group).\*

*angusticollis* (Mocsáry). Palaearctic: Turkey.

*angusticollis* (Mocsáry) 1893b:219. (*Chrysis*). Holotype female; Turkey: 'Araxes' (BUDAPEST ?). (*dichroa* group).

*auropicta* (Mocsáry). Palaearctic: Greece.

*auropicta* (Mocsáry) 1889:264. (*Chrysis*). Syntype male, female; Greece: Attica (VIENNA). (*radians* group).

*austriaca* (Fabricius). Palaearctic: Eurasia, North Africa.

*austriaca* (Fabricius) 1804:173. (*Chrysis*). Holotype; Austria (COPENHAGEN). (*austriaca* group).\*

*pulchella* (Trautmann) 1927:100. (*Pseudochrysis pallidicornis* var.). Type ?; Tunisia (BERLIN?). Nec Spinola 1808.

*fracta* (Haupt) 1956:77. (*Chrysis austriaca* ssp.). Type ?; central Europe (Mus. ?).

*bactriana* (Semenov). Palaearctic: s USSR.

*bactriana* (Semenov) 1967:150. (*Chrysis*). Holotype male; Uzbek SSR: Chimgan near Tashkent (LENINGRAD). (*radians* group).\*

*barbara* (Lucas). Palaearctic: Algeria.

*barbara* (Lucas) 1849:307. (*Chrysis*). Lectotype female (desig. Bohart herein); Algeria: La Calle (PARIS). (*cuprea* group).\*

*barbata* (Buysson). Palaearctic: Middle East.

*barbata* (Buysson) 1900:138. (*Chrysis*). Lectotype male (desig. Bohart herein); Jordan: 'Bethlehem' (OXFORD). (*radians* group).\*

*barbatICA* Bohart. Palaearctic: Turkey.

*barbatula* (Linsenmaier) 1968:131. (*Chrysis*). Holotype male, Turkey: Mut (LUZERN). Nec Edney 1962.

*barbatICA* Bohart. N. repl. name for *barbatula* (Linsenmaier). (*radians* group).

*boharti* Horning. Nearctic: w USA, sw Canada.

*boharti* Horning 1971:29. Holotype male; USA: California, Mono Co., White Mts., Crooked Creek Lab. (DAVIS). (*radians* group).\*



*caesar* Christ.

*caesar* Christ 1791:397. Unknown species.

*candens* (Germar). Palaearctic: s Europe.

*candens* (Germar) 1817:260. (*Chrysis*). Holotype female; Yugoslavia: Fiume (Mus. ?). (*candens* group).

*lais* (Abeille) 1877:66. (*Chrysis*). Holotype; France: Lorgues (PARIS ?).

*chloroprasis* (Buysson). Palaearctic: Algeria.

*chloroprasis* (Buysson) 1888:5. (*Chrysis*). Holotype female; Algeria (F. Ancey Coll. ?). (*austriaca* group).

*chrysogenalis* (Linsenmaier). Palaearctic: Middle East.

*chrysogenalis* (Linsenmaier) 1969:374. (*Chrysis*). Holotype male; Israel: Jerusalem (LUZERN). (*dichroa* group).\*\*

*ciliciensis* (Mocsáry). Palaearctic: Turkey, Yugoslavia.

*ciliciensis* (Mocsáry) 1914:19. (*Chrysis*). Holotype female; Turkey: Tarsus (BUDAPEST). (*dichroa* group).\*

*cirtana* (Lucas). Palaearctic: North Africa (Algeria, Morocco).

*cirtana* (Lucas) 1849:310. (*Chrysis*). Lectotype male (desig. Bohart herein); Algeria: La Calle (PARIS). (*candens* group).\*

*macrostoma* (Gribodo) 1874:360. (*Chrysis*). Holotype female; Algeria (GENOA). N. synonymy.\*

*ciscirtana* (Linsenmaier). Palaearctic: Middle East, Turkey.

*ciscirtana* (Linsenmaier) 1959a:97. (*Chrysis*). Holotype female; 'Palestine' (LUZERN). (*candens* group).\*\*

*cobaltina* (Aaron). Nearctic: USA (widespread), nw Mexico.

*cobaltina* (Aaron) 1885:228. (*Chrysis*). Holotype male (not female); USA: Massachusetts (PHILADELPHIA). (*radians* group).\*

*lateridentata* (Aaron) 1885:228. (*Chrysis*). Lectotype female (desig. Cresson 1928); USA: Montana (PHILADELPHIA).\*

*crescentis* Horning. Nearctic: w USA (s California).

*crescentis* Horning 1971:27. Holotype male; USA: California, Tulare Co., Johnsdale (DAVIS). (*radians* group).\*

*cuprea* (Rossi). Palaearctic: central and s Europe.

*cuprea* (Rossi) 1790:78. (*Chrysis*). Holotype; Italy: Florence (PARMA ?). Nec *Vespa cuprea* Fourcroy 1785 (*cuprea* group).

*caerulescens* (Fabricius) 1798:257. (*Chrysis*). Lectotype female (desig. Bohart herein); France (PARIS).\*

*coerulipes* (Fabricius) 1804:173 (*Chrysis*). Lectotype male (desig. Bohart herein); France: Paris (PARIS).\*

- aurichalcea* (Lepeletier) 1806:128. (*Chrysis*). Holotype female; locality unknown (Mus. ?).
- demelti* (Linsenmaier) 1987:145. (*Chrysis cuprea* ssp.). Holotype female; Turkey: Konya (LUZERN).
- cyrenaica* (Gribodo). Palaearctic: Libya.
- cyrenaica* (Gribodo) 1924:268. (*Chrysis*). Type ?; Libya (GENOA). (*austriaca* group).
- declinanalis* (Linsenmaier). Palaearctic: Turkey.
- declinanalis* (Linsenmaier) 1968:48. (*Chrysis*). Holotype female; Turkey: Kilyos (LUZERN). (*dichroa* group).
- desertorum* (Buysson). Palaearctic: Turkey, Middle East, sw USSR.
- desertorum* (Buysson) 1887b:175. (*Chrysis*). Lectotype male (desig. Bohart herein); Israel: Ramle (PARIS). (*radians* group).\*
- cyanocoelia* (Mocsáry) 1889:249. (*Chrysis*). Holotype male (not female); Georgian SSR: Tbilisi (BUDAPEST).\*
- desidiosa* (Buysson). Palaearctic: s USSR.
- desidiosa* (Buysson) (In André) 1894:280. (*Chrysis*). Holotype female; USSR: 'Caucasus' (PARIS). (*radians* group).\*
- petri* (Semenov) 1903:397. (*Chrysis*). Lectotype female (desig. Bohart herein); Kirghiz SSR: Semiretshje (LENINGRAD). N. synonymy.\*
- korsakovi* (Semenov and Nikol'skaya) 1954:114. (*Chrysis*). Holotype male; Tadzhik SSR: Ruidasht (LENINGRAD). N. synonymy.\*
- dichroa* (Dahlbom). Palaearctic: central and s Europe, Middle East, sw USSR.
- dichroa* (Dahlbom) 1854:146. (*Chrysis*). Syntype male, female; Austria, Italy, Asia Minor (LUND ?). (*dichroa* group).
- socia* (Dahlbom) 1854:145. (*Chrysis*). Holotype; Italy: Sicily (VIENNA).
- baeri* (Radoszkowski) 1866:303. (*Chrysis*). Type ?; USSR: Caucasus (KRAKOW ?).
- minor* (Mocsáry) 1889:274. (*Chrysis dichroa* var.). Lectotype female (desig. Bohart herein); Hungary: Budapest (BUDAPEST). Nec Mocsáry 1889:223.\*
- kalypso* (Trautmann) 1926a:8. (*Holochrysis dichroa* var.). Holotype male; Austria: Vienna (BERLIN).\*
- rhodesiana* (Linsenmaier) 1959a:87. (*Chrysis dichroa* ssp.). Holotype male; Greece: Rhodes Isl. (LUZERN).
- dichropsis* (Buysson). Palaearctic: Morocco, Cyprus, Middle East.
- dichropsis* (Buysson) (In André) 1894:378. (*Chrysis*). Holotype male; Syria (Mus. ?). (*dichroa* group).
- djelma* (Buysson). Palaearctic: Europe, North Africa.
- djelma* (Buysson) (in André) 1894:285. (*Chrysis*). Lectotype male (desig. Bohart herein); Algeria (PARIS). (*radians* group).\*
- foveata* (Trautmann) 1926a:8. (*Holochrysis*). Holotype female; W. Germany: Oldenburg (Oelburg) (BERLIN). Nec Dahlbom 1845.\*

*eldari* (Radoszkowski). Palaearctic: sw USSR.

*eldari* (Radoszkowski) 1893b:242. (*Olochrysis*). Holotype female; USSR: 'Caucase Eldar' (KRAKOW ?). (*radians* group).

*elzearii* (Buysson). Palaearctic: Turkey, Middle East.

*elzearii* (Buysson) (In André) 1894:346. (*Chrysis*). Syntype male, female; 'Syrie' (PARIS ?). (*radians* group).

*eos* (Semenov). Palaearctic: s USSR.

*eos* (Semenov) 1954a:112. (*Chrysis*). Lectotype male (desig. Bohart herein); Uzbek SSR: Tashkent (LENINGRAD). (*radians* group).\*

*oshanini* (Semenov) 1967:150. (*Chrysis*). Holotype female; Kazakh SSR: Baigakum (LENINGRAD). N. synonymy.\*

*erigone* (Mocsáry). Palaearctic: Cyprus, Turkey, Middle East, Iran, sw USSR.

*erigone* (Mocsáry) 1889:239. (*Chrysis*). Lectotype female (desig. Bohart 1986b); USSR: 'Kaucasus' (BUDAPEST). (*radians* group).\*

*turcica* (Mocsáry) 1914:18. (*Chrysis*). Holotype female; Turkey: Sille (BUDAPEST).\*

*baccha* (Balthasar) 1953:175. (*Chrysis*). Holotype female; Israel: Jerusalem (PRAGUE). N. synonymy.\*\*

*errans* (Buysson). Palaearctic: Algeria.

*errans* (Buysson) (In André) 1896:721. Holotype female; Algeria: Biskra (PARIS ?). (*austriaca* group).

*filiformis* (Mocsáry). Palaearctic: se Europe.

*filiformis* (Mocsáry) 1889:266. (*Chrysis*). Lectotype male (desig. Móczár 1965); Hungary: s Mts. (BUDAPEST). (*dichroa* group).\*

*foetiana* (Semenov). Palaearctic: s USSR.

*foetiana* (Semenov) 1967:147. (*Chrysis*). Holotype male; Turkmen SSR: near Ashkabad (LENINGRAD). (*radians* group).\*

*foveatidorsa* (Linsenmaier). Palaearctic: Middle East.

*foveatidorsa* (Linsenmaier) 1968:48. (*Chrysis*). Holotype female; 'Palestine' (LUZERN). (*radians* group).

*fragaria* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*fragaria* (Semenov and Nikol'skaya) 1954:113. (*Chrysis*). Lectotype female (desig. Bohart herein); Tadzhik SSR: Kondara (LENINGRAD). (*radians* group).\*

*fulminatrix* (Buysson). Palaearctic: Algeria.

*fulminatrix* (Buysson) 1888:4. (*Chrysis*). Holotype male; Algeria: Teniet (PARIS ?). (*dichroa* group).

*gazagnairei* (Buysson). Palaearctic: Algeria.

*gazagnairei* (Buysson) 1890a:134. (*Chrysis*). Lectotype female (desig. Bohart herein); Algeria: Tlemcen (PARIS). (*austriaca* group).\*

*genalis* (Mocsáry). Palaearctic: s USSR.

*genalis* (Mocsáry) 1887a:14. (*Chrysis*). Holotype female (Radoszkowski 1877:pl. 1, fig. 7) (MOSCOW). (*radians* group).

*smaragdulus* (Semenov) 1967:148. (*Chrysis*). Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). N. synonymy.\*

*getula* (Buysson). Palaearctic: Algeria.

*getula* (Buysson) 1898a:130. (*Chrysis*). Holotype female; Algeria: Mecheria (PARIS). (*austriaca* group).\*

*graja* (Mocsáry). Palaearctic: Greece, Middle East.

*graja* (Mocsáry) 1889:258. (*Chrysis*). Syntype females; Greece: Attica (ATHENS, LEIDEN). (*radians* group).

*obenbergeri* (Balthasar) 1953:198. (*Chrysis*). Holotype female; Israel: Jerusalem (PRAGUE).\*\*

*gyllenhali* (Dahlbom). Palaearctic: n Europe.

*gyllenhali* (Dahlbom) 1854:143. (*Chrysis*). Holotype female; Sweden (LUND). (*dichroa* group).\*

*hirsuta* (Gerstaecker). Palaearctic: Europe and Eurasia.

*hirsuta* (Gerstaecker) 1869:185. (*Chrysis*). Holotype female; Germany: Ober-Karnthen (Mus. ?). (*radians* group).

*osmia* (Thomson) 1870:106. (*Chrysis*). Holotype male; Sweden (LUND).\*

*lativentris* (Tournier) 1879:92. (*Chrysis*). Syntype male, female; Switzerland: Geneva, Peney (GENEVA ?).

*similaris* (Tournier) 1879:93. (*Chrysis*). Holotype female; Switzerland: Geneva, Peney (GENEVA ?).

*dauidi* (Buysson) 1898b:524. (*Chrysis*). Holotype female; India: Jehol (PARIS).\*

*hybrida* (Lepeletier). Palaearctic: Europe, North Africa, Turkey, Middle East.

*hybrida* (Lepeletier) 1806:128. (*Chrysis*). Lectotype female (desig. Bohart herein); locality unknown (PARIS). (*austriaca* group).\*

*venusta* (Mocsáry) 1878:247. (*Chrysis*). Lectotype male (desig. Móczár 1965); Hungary (BUDAPEST). Nec Cresson 1865b.\*

*concolor* (Trautmann and Trautmann) 1919:33. (*Holochrysis hybrida* var.). Lectotype female (desig. Bohart herein); France: Jura (BERLIN).\*

*dusmeti* (Trautmann) 1926a:8. (*Holochrysis hybrida* var.). Holotype female; Spain: Castile (BERLIN).\*

*sardiniensis* (Linsenmaier) 1959a:97. (*Chrysis hybrida* ssp.). Holotype female; Sardinia (LUZERN).

*ignifrons* (Brullé). Palaearctic: s Europe, North Africa, Middle East, Turkey, sw USSR.

*ignifrons* (Brullé) 1833:375. (*Chrysis*). Holotype female; Greece: 'Moree' (PARIS). (*austriaca* group).\*

*unicolor* (Lucas) 1849:309. (*Chrysis*). Holotype male; Algeria: Constantine (PARIS ?). Nec



Dahlbom 1831.

*aurifrons* (Dahlbom) 1854:122. (*Chrysis*). Lectotype male (desig. Bohart herein); Italy (LUND).\*

*lucasi* (Abeille) 1878:5. (*Chrysis*). Repl. name for *unicolor* Lucas 1849.

*smaragdina* (Trautmann) 1926a:8. (*Holochrysis ignifrons* var.). Lectotype female (desig. Bohart herein); 'Syrien' (BERLIN).\*

*anatolica* (Trautmann) 1926a:8. (*Holochrysis ignifrons* var.). Holotype female; Turkey: Anatolia (BERLIN).\*

*arethusa* (Balthasar) 1953:192. (*Chrysis ignifrons* var.). Holotype female; Israel: Jerusalem (PRAGUE).

*nikitini* (Semenov) 1967:151. (*Chrysis*). Holotype male; Georgian SSR: Borzhomi (LENINGRAD). N. synonymy.\*

*pseudanatolica* (Linsenmaier) 1968:131. (*Chrysis*). Holotype male; Turkey: Urfa (LUZERN).

*interdichroa* (Linsenmaier). Palaearctic: Middle East.

*interdichroa* (Linsenmaier) 1959a:86. (*Chrysis*). Holotype male, 'Palestine' (LUZERN). (*dichroa* group).\*\*

*inuitata* (Aaron). Nearctic: w USA (California, Nevada, Oregon), sw Canada.

*inuitata* (Aaron) 1885:227. (*Chrysis*). Lectotype male (desig. Cresson 1928); Canada: British Columbia, Vancouver (PHILADELPHIA). (*radians* group).\*

*optima* (Aaron) 1885:227. (*Chrysis*). Lectotype female (desig. Cresson 1928); USA: 'Cala' (PHILADELPHIA).\*

*interfata* (Buysson) 1908c:208. (*Holochrysis*). Holotype female; USA: California (PARIS).\*

*isabella* (Trautmann). Palaearctic: se Europe, Morocco.

*isabella* (Trautmann) 1926a:7. (*Holochrysis hirsuta* var.). Lectotype male (desig. Bohart herein); Spain: Montarco (BERLIN). (*radians* group).\*

*prodichroa* (Linsenmaier) 1959a:84. (*Chrysis*). Holotype male; France: Var (LUZERN).

*kashmirensis* (Nurse). Palaearctic: Pakistan.

*kashmirensis* (Nurse) 1902:307. (*Chrysis*). Lectotype female (desig. Bohart herein); Pakistan: Kashmir (LONDON). (*radians* group).\*

*koma* (Tsuneki). Palaearctic: Korea.

*koma* (Tsuneki) 1950:65. (*Chrysis*). Holotype female; Korea: Kogendo (TSUKUBA). (*radians* group).

*kyrae* Krombein. Nearctic: USA (widespread), sw Canada.

*kyrae* Krombein 1963a:150. Holotype male; USA: Maryland, Plummers Isl. (WASHINGTON). (*radians* group).\*

*lada* (Semenov). Palaearctic: Turkey.

*lada* (Semenov) 1967:151. (*Chrysis*). Holotype male; Turkey: near Kars (LENINGRAD). (*austriaca* group).\*

- laevigata* (Abeille). Palaearctic: Europe, North Africa, Middle East, Iran, sw USSR.  
*laevigata* (Abeille) 1879:81. (*Chrysis dichroa* var.). Syntype male, female; USSR: 'Caucasus' (PARIS ?). (*dichroa* group).
- purpurascens* (Mocsáry) 1889:272. (*Chrysis laevigata* var.). Holotype female; Algeria: Henon (BUDAPEST).\*
- fortiterpunctata* (Linsenmaier) 1959a:87. (*Chrysis laevigata* ssp.). Holotype male; Cyprus (LUZERN).
- lampa* (Semenov). Palaearctic: sw USSR (Georgia).  
*lampa* (Semenov) 1967:150. (*Chrysis*). Holotype male; Georgian SSR: Lagodechi (LENINGRAD). (*radians* group).\*
- laodamia* (Buysson). Palaearctic: Europe, Middle East.  
*laodamia* (Buysson) 1900:135. (*Chrysis*). Lectotype female (desig. Bohart herein); 'Syrie: Brumana' (OXFORD). (*austriaca* group).\*
- iphimedeia* (Trautmann) 1926a:9. (*Gonochrysis mediocris* var.). Holotype female; Yugoslavia: Sarajevo (BERLIN).\*
- procera* (Zimmermann) 1954:264. (*Chrysis*). Lectotype male (desig. Bohart herein); Bulgaria: Varna (BUDAPEST). N. synonymy.\*
- loenidae* (Semenov). Palaearctic: Iran.  
*loenidae* (Semenov) 1967:151. (*Chrysis*). Holotype female; Kazakh SSR: Zaisan, Dzhemeni (LENINGRAD). (*austriaca* group).\*
- longipilis* (Mocsáry). Palaearctic: s USSR.  
*longipilis* □ (Mocsáry) 1911b:467. (*Chrysis*). Holotype male; Uzbe SSR: Samarkand (BUDAPEST). (*radians* group).\*
- ludmilla* (Semenov). Palaearctic: Iran.  
*ludmilla* (Semenov) 1967:155. (*Chrysis*). Holotype female; Iran: Luristan, Kale-Tol (LENINGRAD). (*radians* group).\*
- lomonsovi* (Semenov). Palaearctic: s USSR.  
*lomonsovi* (Semenov) 1967:152. Holotype female; Kazakh SSR; Zaisan. Dzhemeni; (LENINGRAD). (*austriaca* group).\*
- lydiae* (Mocsáry). Palaearctic: se Europe, Turkey, Middle East.  
*lydiae* (Mocsáry) 1889:268. (*Chrysis*). Holotype male (not female); Turkey: Brussa (BUDAPEST). (*dichroa* group).\*
- allegata* (Linsenmaier) 1968:49. (*Chrysis lydiae* ssp.). Holotype male; Greece (LUZERN).  
*simuldichroa* (Linsenmaier) 1969:375. (*Chrysis*). Holotype female; Turkey: Urfa (LUZERN). (*dichroa* group).\*\*
- magrettii* (Buysson). Palaearctic: Cyprus, Middle East, s USSR.  
*magrettii* (Buysson) 1890b:533. (*Chrysis*). Holotype female; Syria: Damascus (Mus. ?). (*candens* group).  
*cypriota* (Enslin) 1939:106. (*Holochrysis magretti* var.). Syntype male, female; Cyprus (LUZERN).

- kalliope* (Balthasar) 1953:193. (*Chrysis*). Holotype female; Israel: Jerusalem (PRAGUE). N. synonymy.\*\*
- smaragdicolor* (Balthasar) 1953:196. (*Chrysis magrettii* ab.). Holotype female; Israel: Jerusalem (PRAGUE). Invalid name. Nec Walker 1871.
- martia* (Patton).
- martia* (Patton) 1879:67. Type ?; Canada: Quebec, Godbout River. Unrecognized species, probably introduced from Europe.
- mistrasensis* (Linsenmaier). Palaearctic: Greece.
- mistrasensis* (Linsenmaier) 1968:49. (*Chrysis*). Holotype male; Greece: Mistras (LUZERN). (*dichroa* group).
- modestior* (Morice). Palaearctic: Algeria.
- modestior* (Morice) 1916:265. (*Chrysis*). Lectotype male (desig. Bohart herein); Algeria: Oran Prov., Hammam-bou- Hadjai (OXFORD). (*dichroa* group).\*
- multicolor* (Walker). Palaearctic: Egypt.
- multicolor* (Walker) 1871:8. (*Chrysis*). Syntype male, female; Egypt: Wadi Feiran (lost ?). Unknown species.
- obliquata* (Linsenmaier). Palaearctic: Middle East.
- obliquata* (Linsenmaier) 1968:55. (*Chrysis*). Holotype female; Saudi Arabia: El Riyadh (LUZERN). (*austriaca* group).
- oraniensis* (Lucas). Palaearctic: Greece, Cyprus, Turkey, Middle East.
- oraniensis* (Lucas) 1949:308. (*Chrysis*). Lectotype female (desig. Bohart herein); Israel: Liberiade (PARIS). (*cuprea* group).\*
- porphyrea* (Mocsáry) 1889:284. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Greece: Morea Penin., Cumani (BUDAPEST).\*
- portentosa* (Radoszkowski) 1891:184. (*Chrysis oraniensis* var.). Type ?; Turkmen SSR: Atrek (KRAKOW ?).
- braunsiana* (Trautmann) 1929:154. (*Chrysis oraniensis* var.). Holotype male; Cyprus (BERLIN ?).
- aliquanta* (Linsenmaier) 1959a:83. (*Chrysis oraniensis* ssp.). Holotype male; Jordan: Ramat (LUZERN).
- osiris* (Buysson). Palaearctic: Egypt.
- osiris* (Buysson) 1887:177. (*Chrysis*). Lectotype female (desig. Bohart herein); Egypt (PARIS). (*radians* group).\*
- ottomana* (Mocsáry). Palaearctic: Turkey, Middle East.
- ottomana* (Mocsáry) 1889:239. (*Chrysis*). Holotype male; Turkey: Malaytia (Malaita) (BUDAPEST). (*radians* group).\*
- clythia* (Balthasar) 1953:180. (*Chrysis*). Holotype female; Israel: Jerusalem (PRAGUE).\*\*
- pacifica* (Say). Nearctic: USA, Canada, widespread.

*pacifica* (Say) 1828:82. (*Chrysis*). Type lost; USA: Indiana. Neotype male (desig. Bohart 1982); USA: Indiana, Lafayette (DAVIS). (*radians* group).\*

*bilaris* (Dahlbom) 1854:103. (*Chrysis*). Holotype male; USA: New York (LUND).\*

*halictula* (Gribodo) 1874:359. (*Chrysis*). Holotype female; USA: California (GENOA).\*

*resecta* (Gribodo) 1879:334. (*Chrysis*). Holotype female; USA: California, Mariposa (GENOA).\*

*pelopaeicida* (Buysson). Palaearctic: Greece, Turkey, Middle East.

*pelopaeicida* (Buysson) 1887b:176. (*Chrysis*). Lectotype male (desig. Bohart herein); Israel: Liberiade (PARIS). (*radians* group).\*

*pilosissima* (Bischoff). Palaearctic: Turkey.

*pilosissima* (Bischoff) 1910:454. (*Holochrysis*). Holotype female; Turkey: Senjirti (BERLIN). (*radians* group).

*prohybrida* (Linsenmaier). Palaearctic: Morocco.

*prohybrida* (Linsenmaier) 1959a:97. (*Chrysis*). Holotype female; Morocco: Ifrane (Naef Coll. ?). (*austriaca* group).

*pruna* (Gribodo). Palaearctic: North Africa, Middle East.

*pruna* (Gribodo) 1879:337. (*Chrysis*). Lectotype male (desig. Bohart herein); Algeria (GENOA). (*cuprea* group).\*

*pseudodichroa* (Linsenmaier). Palaearctic: Cyprus, Yugoslavia, Middle East, North Africa, s USSR.

*pseudodichroa* (Linsenmaier) 1959a:86. (*Chrysis*). Holotype male; Cyprus (LUZERN). (*dichroa* group).\*\*

*purpureifrons* (Abeille). Palaearctic: s Europe, North Africa, s USSR.

*purpureifrons* (Abeille) 1878:4. (*Chrysis*). Holotype; France (PARIS ?). (*dichroa* group).

*cretica* (Mocsáry) 1911a:316. (*Chrysis*). Holotype female; Greece: Crete (BUDAPEST). N. synonymy.\*

*armata* (Trautmann) 1926a:8. (*Holochrysis purpureifrons* var.). Lectotype female (desig. Bohart herein); France: Marseille (BERLIN).\*

*helleniensis* (Linsenmaier) 1968:48. (*Chrysis purpureifrons* ssp.). Holotype female; Greece: Athens (LUZERN).

*pyrogaster* (Brullé). Palaearctic: se Europe, Turkey, Middle East.

*pyrogaster* (Brullé) 1833:374. (*Chrysis*). Lectotype female (desig. Bohart herein); Greece: 'Moree' (PARIS). (*austriaca* group).\*

*pyrocoelia* (Mocsáry) 1889:255. (*Chrysis*). Syntypes; 'Asia Minor' (HALLE, BUDAPEST, VIENNA).\*

*pyrrhogaster* (Dalla Torre) 1892:89. (*Chrysis*). Emendation of *pyrogaster* (Brullé) 1833.

*gigantea* (Buysson) (In André) 1894:315. (*Chrysis simplex* var.). Syntype females; Greece: Attica (PARIS ?).



*radians* Harris. Palaearctic: Eurasia, North Africa.

*radians* Harris 1776:69. Type ?; England (LONDON, lost). (*radians* group).

*bicolor* (Dahlbom) 1829:10. (*Chrysis*). Syntypes; Europe (Mus. ?). Nec Lepeletier 1806.

*mutica* (Förster) 1853:306. (*Chrysis*). In key only, possibly not conspecific.

*pustulosa* (Abeille) 1878:6. (*Chrysis*). Lectotype female (desig. Morgan 1984); France: Lorgues (PARIS).

*blancoburgensis* (Schmiedeknecht) 1880a:174. (*Chrysis*). Type ?; Germany: 'Thuringia' (BERLIN).

*naila* (Mocsáry) 1890:53. (*Chrysis*). Holotype male; Turkey: Smyrna (COPENHAGEN).\*

*orientalis* (Buysson) (In André) 1894:300. (*Chrysis pustulosa* var.). Lectotype female desig. Bohart herein; Israel: Jaffa (PARIS). Nec Guérin 1842.\*

*orientis* (Balthasar) 1953:205. (*Chrysis*). Repl. name for *orientalis* Buysson 1894.

*medea* (Semenov) 1967:148. (*Chrysis*). Holotype male; Georgian SSR: Cape Pitsunda nw Sukhumi (LENINGRAD). Nec Balthasar 1953. N. synonymy.\*

*refulgens* (Spinola). Palaearctic: Eurasia, North Africa.

*refulgens* (Spinola) 1806:8. (*Chrysis*). Holotype female; France: Paris (PARIS). (*radians* group).\*

*flammea* (Lepeletier) 1806:128. (*Chrysis*). Holotype female; France: Paris (PARIS ?).

*artifex* (Smith) 1874b:456. (*Chrysis*). Holotype male; Hong Kong (LONDON). N. synonymy.\*

*rhodia* (Mocsáry). Palaearctic: Greece, Turkey, Middle East.

*rhodia* (Mocsáry) 1889:258. (*Chrysis*). Type ?; Greece: Rhodes Isl. (VIENNA). (*radians* group).

*judith* (Balthasar) 1953:192. (*Chrysis*). Holotype male; Israel: Jerusalem (PRAGUE).

*orgopia* (Linsenmaier) 1968:47. (*Chrysis judith* ssp.). Holotype female; Turkey: Orgop (LUZERN). N. synonymy.

*rufiventris* (Dahlbom). Palaearctic: s Europe, North Africa, Turkey, Middle East, s USSR.

*rufiventris* (Dahlbom) 1854:119. (*Chrysis*). Holotype; locality unknown (STOCKHOLM). (*radians* group).

*mulstanti* (Abeille) 1878:3. (*Chrysis*). Lectotype male (desig. Kimsey 1986c); France (PARIS). N. synonymy.\*

*rudis* (Buysson) (In André) 1894:284. (*Chrysis rufiventris* var.). Holotype male; Algeria: Oran (PARIS ?).

*fretissana* (Linsenmaier) 1987:145. (*Chrysis rufiventris* ssp.). Holotype female; Tunisia: Fretissa (LUZERN).

*sagmatis* Bohart. Nearctic: w USA, nw Mexico.

*sagmatis* Bohart 1982:154. Holotype male; USA: California, Yolo Co., Davis (DAVIS). (*radians* group).\*

*schultzei* (Mocsáry). Afrotropical: South Africa.

*schultzei* (Mocsáry) 1910:33. (*Chrysis*). Holotype male; South Africa: Cape Prov., Nigramoop

(BUDAPEST). (*austriaca* group).\*

*scita* (Mocsáry). Palaearctic: Middle East.

*scita* (Mocsáry) 1883:14. (*Chrysis*). Holotype male; Syria: Kaifam (BUDAPEST). (*radians* group).\*

*simplex* (Dahlbom). Palaearctic: central and s Europe, North Africa.

*simplex* (Dahlbom) 1854:127. (*Chrysis*). Holotype female; Greece (LUND). (*austriaca* group).\*

*ampliata* (Linsenmaier) 1968:54. (*Chrysis simplex* ssp.). Holotype male; Switzerland: Wallis (LUZERN).

*simplicornis* (Buysson). Palaearctic: North Africa (Algeria, Morocco).

*simplicornis* (Buysson) (In André) 1894:328. (*Chrysis*). Holotype male; Algeria (Mus. ?). (*austriaca* group).

*simulacra* (Linsenmaier). Palaearctic: s Europe, Middle East.

*simulacra* (Linsenmaier) 1959a:86. (*Chrysis*). Holotype male; Greece: Corinth (LUZERN). (*dichroa* group).\*\*

*sinuosiventris* (Abeille). Palaearctic: Tunisia, Algeria.

*sinuosiventris* (Abeille) 1878:4. (*Chrysis*) Type ?; Tunisia (Mus. ?) (*radians* group).

*smaragdicolor* (Walker). w USA, sw Canada.

*smaragdicolor* (Walker) 1868b:343. (*Chrysis*). Holotype female; Canada: British Columbia (LONDON). (*radians* group).\*

*smyrnensis* (Mocsáry). Palaearctic: Turkey.

*smyrnensis* (Mocsáry) 1889:268. (*Chrysis*). Holotype female; Turkey: Izmir (COPENHAGEN). (*dichroa* group).\*

*sogdiana* (Semenov). Palaearctic: s USSR.

*sogdiana* (Semenov) 1954a:113. (*Chrysis*). Holotype male; Tadzhik SSR: Aman-Kutan (LENINGRAD). (*radians* group).\*

*sonorensis* (Cameron). Nearctic: sw USA, w Mexico.

*sonorensis* (Cameron) 1888:461. (*Chrysis*). Holotype female; Mexico: northern Sonora (LONDON). (*radians* group).\*

*sinuatocaudata* (Bischoff) 1910:456. (*Gonochrysis*). Holotype female; Mexico: Oaxaca (BERLIN ?). N. synonymy.

*sulcata* (Dahlbom). Palaearctic: s Europe, Turkey, Middle East, s USSR.

*sulcata* (Dahlbom) 1845:7. (*Chrysis*). Syntypes; Greece: Rhodes Isl., Italy: Sicily (VIENNA, STOCKHOLM). (*radians* group).

*picticornis* (Mocsáry) 1887a:17. (*Chrysis*). Repl. name for *varicornis* Radoszkowski 1877.

*varicornis* (Radoszkowski) 1887:11. (*Chrysis*). Holotype female; USSR: 'Caucasus, Turkestan' (KRAKOW ?). Nec Spinola 1838.

*tota* (Aaron). Nearctic: w USA, w Canada.

*integra* (Cresson) 1865b:306. (*Chrysis*). Holotype female; USA: Colorado (PHILADELPHIA).  
Nec Fabricius 1787.\*

*tota* (Aaron) 1885:228. Repl. name for *integra* Cresson 1865b. (*radians* group).

*elongata* (Mocsáry) 1887a:15. Repl. name for *integra* Cresson 1865a.

*trimaculata* (Förster). Palaearctic: central and s Europe, Turkey, North Africa.

*trimaculata* (Förster) 1853:307. (*Chrysis*). Syntype females; Europe (BERLIN ?). (*radians* group).

*foveata* (Dahlbom) 1845:6. (*Chrysis*). Holotype female; Egypt (STOCKHOLM).

*aerata* (Dahlbom) 1854:129. (*Chrysis*). Holotype female; Switzerland: St. Luzi (LUND ?).

*gracilis* (Trautmann) 1926a:8. (*Holochrysis trimaculata* var.). Lectotype male (desig. Bohart herein); France: Jura (BERLIN).\*

*umbra* (Semenov and Nikol'skaya). Palaearctic: s USSR.

*umbra* (Semenov and Nikol'skaya) 1954:116. (*Chrysis*). Holotype female; Tadzhik SSR: Kvak (LENINGRAD). (*austriaca* group).\*

*karataevica* (Semenov) 1967:149. (*Chrysis*). Holotype female; Kazakh SSR: Dzhulek (LENINGRAD). N. synonymy.\*

*urfana* (Linsenmaier). Palaearctic: Turkey.

*urfana* (Linsenmaier) 1968:132. (*Chrysis*). Holotype female; Turkey: Urfa (LUZERN). (*candens* group).

*chrysocandens* (Linsenmaier) 1969:375. (*Chrysis*). Holotype female; 'Palestine': Wadi Dilb, near Ramallah (LUZERN).

*varicornis* (Spinola). Palaearctic: s Europe, North Africa, Middle East, Turkey, s USSR.

*varicornis* (Spinola) 1838:449. (*Chrysis*). Holotype male; Egypt (TURIN ?). (*radians* group).

*gastrica* (Dahlbom) 1845:115. (*Chrysis*) Holotype female; Portugal: Lusitania (BERLIN). N. synonymy.

*mendax* (Abeille) 1878:4. (*Chrysis*). Holotype female; Algeria: Lambessa (GENEVA ?). N. synonymy.

*obliterata* (Abeille) 1879:60. (*Chrysis varicornis* var.). Holotype male; France: Marseille (PARIS ?). N. synonymy.

*separanda* (Radoszkowski) 1889:14. (*Chrysis*). Holotype male; Syria ('Syra') (KRAKOW ?).

*cyaneiventris* (Mocsáry) 1889:238. (*Chrysis*). Holotype female; Algeria: Setif (GENEVA). N. synonymy.

*variicornis* (Mocsáry) 1889:235. (*Chrysis*). Emendation of *varicornis* Spinola 1838.

*hiendlmayeri* (Mocsáry) 1889:236. (*Chrysis*). Syntype male, female; Spain: Algeria (GENEVA).

*sodalis* (Mocsáry) 1893:217. (*Chrysis*). Type ?; USSR: Caucasus, Araxes River, Vallen (VIENNA ?).

*nobilis* (Trautmann) 1926a:8. (*Holochrysis varicornis* var.). Holotype female; Spain: Castile (BERLIN).\*

*persephone* (Semenov and Nikol'skaya) 1954:114. (*Chrysis*). Holotype female; Tadzhik SSR:

Kondara (LENINGRAD). N. synonymy.\*

*viridana* (Dahlbom). Palaearctic: Greece, Turkey.

*viridana* (Dahlbom) 1854:137. (*Chrysis*). Holotype female; 'Asia Minor' (BERLIN ?). (*dichroa* group).

*zuleica* (Buysson). Palaearctic: North Africa, Algeria.

*zuleica* (Buysson) 1890a:133. (*Chrysis*). Lectotype male (desig. Bohart herein); Algeria: Sebdon (PARIS). (*austriaca* group).\*

---

### *Chrysurissa* Bohart (Figs 117 and 118)

*Chrysurissa* Bohart 1980:135. Type: *Chrysis densa* Cresson 1865b:307. Monobasic and orig. desig.

### Generic diagnosis

Medium-sized, 7–10 mm long, green to purple; F-I 3.0–3.5 times as long as broad,

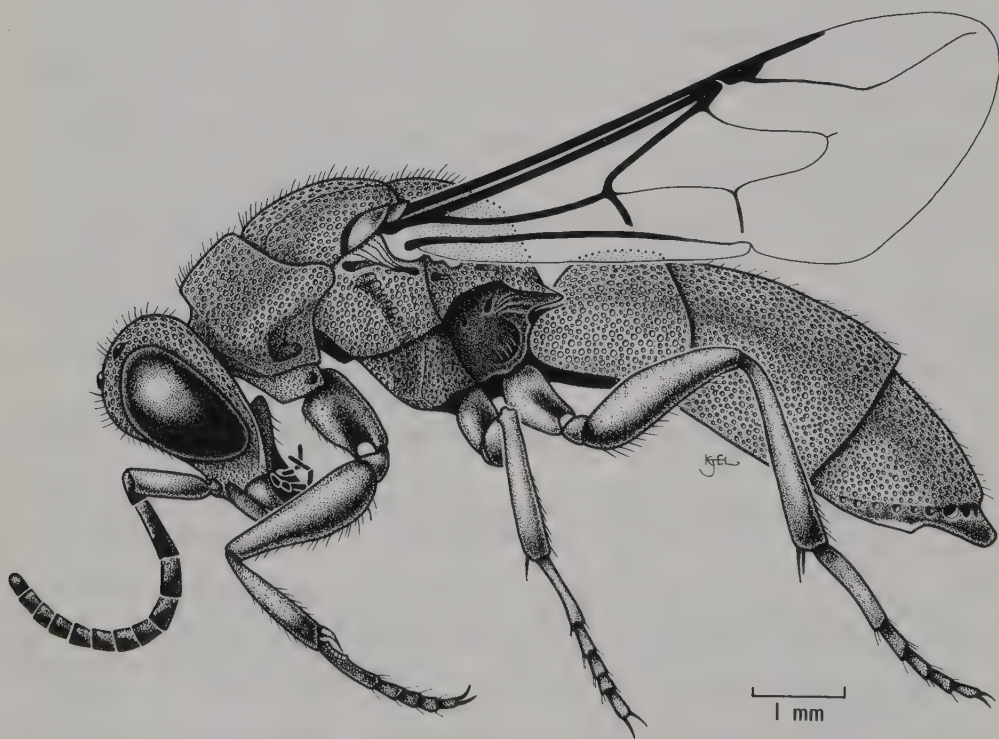


Fig. 117. *Chrysurissa densa*, female.



2.5 times as long as pedicel, 1.5–1.6 times as long as F-II or F-III; scapal basin moderately concave with weak to moderate microridging, brow rather sharp and often medially with remnant of transverse frontal carina (Fig. 118a); malar space 1.5–2.0 MOD; subantennal space 2.5–3.5 MOD; subgenal area absent; mid ocellar area undefined; mid ocellus unlidded; pronotum slightly shorter than scutellum, medial depression large and shallow, lateral depression deep; metanotum simple; mesopleuron

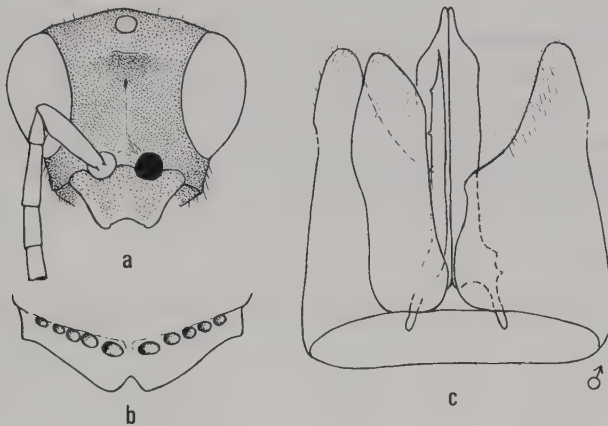


Fig. 118. *Chrysurissa densa*. (a) face; (b) T-III apex; and ♂ genital capsule, ventral, volsella omitted on right side.

with scrobal and episternal sulci and verticulus; propodeal angle triangular, sometimes slightly convex posteriorly; T-I broad; T-II not sharp apicolaterally; T-III large, about 0.8 times as long as T-II, pit row well developed, post-pit area angled laterally, emarginate medially, shape distinctive (Fig. 118b); S-II spots large and sometimes joined. Male terminalia (Fig. 118c): S-VIII nearly triangular, gonocoxa and cuspis stout, aedeagus simple.

## Hosts

This monotypic genus has been reared from nests of the North American masarid genus *Pseudomasaris*; specifically *P. vespoides* (Cresson), *edwardsii* (Cresson) (Hicks 1929), *zonalis* (Cresson) (Parker 1967) and *occidentalis* (Cresson) (Hungerford 1937).

## Distribution

*Chrysurissa* occurs in the Nearctic Region, largely west of the 100th meridian. There is one rearing record from Independence, Kansas near the 96th meridian.

## Discussion

The most distinctive feature of *Chrysurissa*, particularly in the female, is the shape of T-III, which is unlike that of any other genus (Fig. 118*b*). Bohart and Kimsey (1982) discussed similarities to *Chrysura*. They also provided a map correlating the distributions of *Pseudomasaris* and *Chrysurissa*. The Kansas record given above should be added to the map. No other genus of chrysidids in the New World is known to parasitize masarids.

## Checklist of *Chrysurissa*

---

*densa* (Cresson). Nearctic: w USA.

*densa* (Cresson) 1865*b*:307. (*Chrysis*). Lectotype female (desig. Cresson 1916); USA: Colorado ('Col.') (PHILADELPHIA).\*

---

## *Exochrysis* Bohart (Figs. 119 and 120)

*Exochrysis* Bohart 1966*b*:141. Type: *Chrysis panamensis* Cameron 1888:464. Orig. desig.

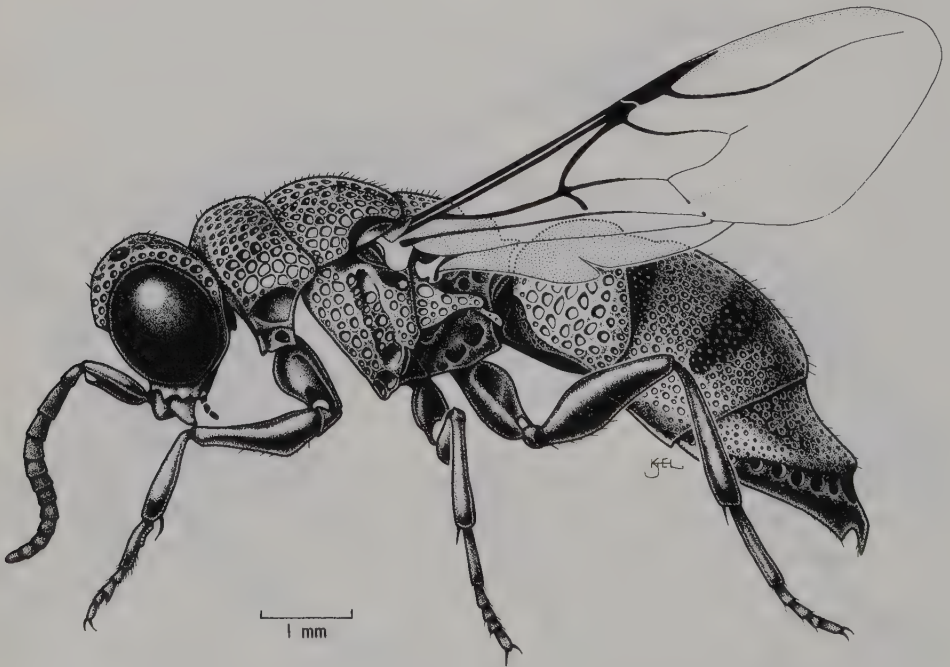


Fig. 119. *Exochrysis leucostigma*, female.

### Generic diagnosis

Medium sized (6–10 mm long); scapal basin moderately hollowed, finely punctate and reflective, LID rarely greater than eye breadth; F-I 2.1–2.6 times as long as broad; TFC weak to strong, forming base of an inverted heart-shaped mid ocellar area (Fig. 120*b*); mid ocellus not lidded; malar space 1.0–2.0 MOD; genal carina usually separated by 0.5 MOD from eye; subgenal area discrete; subantennal space about 1 MOD; pronotum with dorsal surface sloping in front, without pits on anterior declivity, medial groove weak and stained purplish, sublateral curve sharp but not completely carinate, lateral depression moderately deep; fore wing Rs sigmoid, curving away from costal margin (Fig. 119); hind femur with dorsobasal pit; hind basitarsus metallic; metanotum flattened and rough dorsomedially, lateral projection digitate and pointing away from propodeal angle; mesopleuron relatively simple, without scrobal sulcus, subdentate below along posterior carina; propodeum with medial tooth, propodeal angle nearly straight behind and then notched basally; T-I sharply rounded

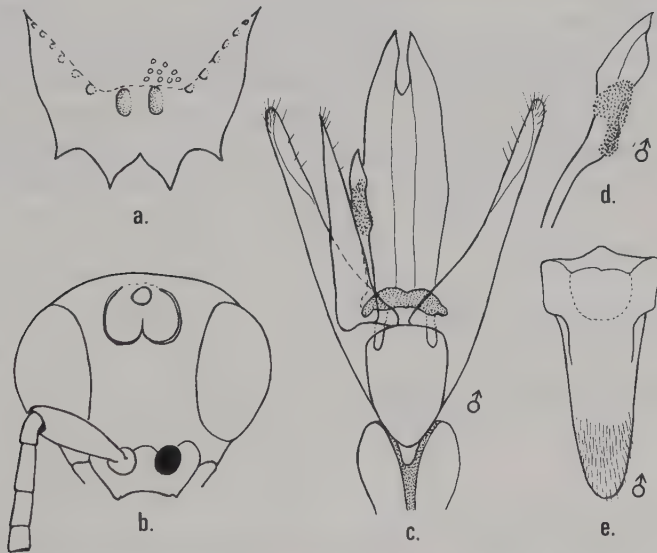


Fig. 120. *Exochrysis tolteca*. (a) T-III, dorsal; (b) face; ♂ genital capsule, volsella omitted from right, ventral; (d) detail of digitus apex; and (e) S-VIII. Female, except as indicated.

anterolaterally; T-II nearly a right angle apicolaterally, medial ridge polished or quite weak, lateral margin sometimes semitransparent; T-III with pit row depressed below prepit bulge, at least middle pair of pits distinct, post-pit punctuation much finer than

prepit, four distal teeth (Fig. 120a); S-II spots round to oval and sexually dimorphic, well separated; female S-III longer than S-II; male S-IV narrowly exposed apically. Male terminalia: S-VIII long and shield-like (as in Fig. 120e), genitalic elements long and slender (Fig. 120c), digitus peculiar (Fig. 120d); female ovipositor segments unmodified, or T-V with small transverse ridges.

## Hosts

*Podium* (Sphecidae) is the only known host. Krombein (1958a, 1967) reported *P. rufipes* (F.) and *P. luctuosum* Sm. as hosts of *alabamensis*.

## Distribution

The 12 species listed are all found in the New World, three occurring from Panama north to south-eastern USA, and nine in South America.

## Discussion

The absence of a scrobal sulcus, as well as the broadly open marginal cell, with a sigmoid Rs bending away from the costal margin (Fig. 119), and sharp anterolateral corners of T-I, separate *Exochrysis* from all other New World genera, except for those in the '*Neochrysis*' complex. From the latter genera *Exochrysis* differs by the presence of a discrete subgenal area, and a combination of other characters listed in the discussion under *Neochrysis*. We have seen types or identified material of 8 of the 12 included species. Kimsey (1985) gave a detailed discussion of this genus and a key to the species. See also the comparison of the genera related to *Neochrysis* given in the discussion under that genus.

## Checklist of *Exochrysis*

---

*albofacies* (Linsenmaier). Neotropical: Argentina.

*albofacies* (Linsenmaier) 1985:452. (*Neochrysis*). Holotype female; Argentina: La Rioja (LUZERN).

*bifossata* (Linsenmaier). Neotropical: Colombia.

*bifossata* (Linsenmaier) 1985:452. (*Neochrysis*). Holotype male; Colombia: Santa Marta (LUZERN).

*imperfiorata* (Gribodo). Neotropical: n South America, Panama.

*imperfiorata* (Gribodo) 1879:330. (*Chrysis*). Lectotype female (desig. Bohart herein); French Guiana: Cayenne (GENOA).\*

*lemniscata* Kimsey. Neotropical: Brazil.

*lemniscata* Kimsey 1985:272. Holotype male; Brazil: São Paulo (DAVIS).\*



*leucostigma* (Mocsáry). Neotropical: Panama, n South America.

*leucostigma* (Mocsáry) 1889:410. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Brazil: Fonte Boa (BUDAPEST).\*

*nitens* (Ducke) 1907:15. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Pará (BELEM).\*

*panamensis* (Cameron). Neotropical: Panama, Colombia, Brazil.

*panamensis* (Cameron) 1888:464. (*Chrysis*). Holotype female; Panama: Chiriquí (LONDON).\*

*plaumanni* (Linsenmaier). Neotropical: Brazil.

*plaumanni* (Linsenmaier) 1985:453. (*Neochrysis*). Holotype female; Brazil: Santa Catarina (LUZERN).

*prospinigera* (Linsenmaier). Neotropical: Argentina, Paraguay, Brazil.

*prospinigera* (Linsenmaier) 1985:451. (*Neochrysis*). Holotype female; Argentina: Buenos Aires (LUZERN).

*silvanus* Kimsey. Neotropical: El Salvador to Brazil.

*silvanus* Kimsey 1985:274. Holotype male; Costa Rica (DAVIS).\*

*spinigera* (Spinola). Neotropical: Mexico to Argentina.

*spinigera* (Spinola) 1838:201. (*Chrysis*). Holotype female; French Guiana: Cayenne (TURIN).

*tenuispina* (Linsenmaier). Neotropical: Venezuela, Ecuador, Guyana, Surinam.

*tenuispina* (Linsenmaier) 1985:451. (*Neochrysis*). Holotype female; Venezuela: Cagna (LUZERN).

*tolteca* (Mocsáry). Neotropical: Mexico to Costa Rica, Nearctic: e USA.

*tolteca* (Mocsáry) 1889:341. (*Chrysis*). Holotype female; Mexico (KRAKOW ?).

*alabamensis* (Mocsáry) 1914:49. (*Chrysis*). Holotype female; USA: Alabama (BUDAPEST). N. synonymy.\*

## *Gaullea* Buysson (Figs 121 and 122)

*Gaullea* Buysson 1910b:173. Type: *Gaullea argentina* Buysson 1910b:174. Monobasic.

## Generic diagnosis

Small species, 2.5–3.5 mm long, stout and coarsely punctate, with white markings on mandible, leg joints (Fig. 122e), tarsi, tegula, and entire T-III post-pit rim (Fig. 122d); scapal basin microridged, sunken beneath strong brow which bears nearly straight TFC (Fig. 122a); F-I 1.5 times breadth, slightly longer than pedicel, F-II, or F-III; malar space 0.5 MOD; subantennal space 0.9 MOD; subgenal area absent; mid ocellar area sunken but not sharply defined; mid ocellus not lidded; pronotum with medial

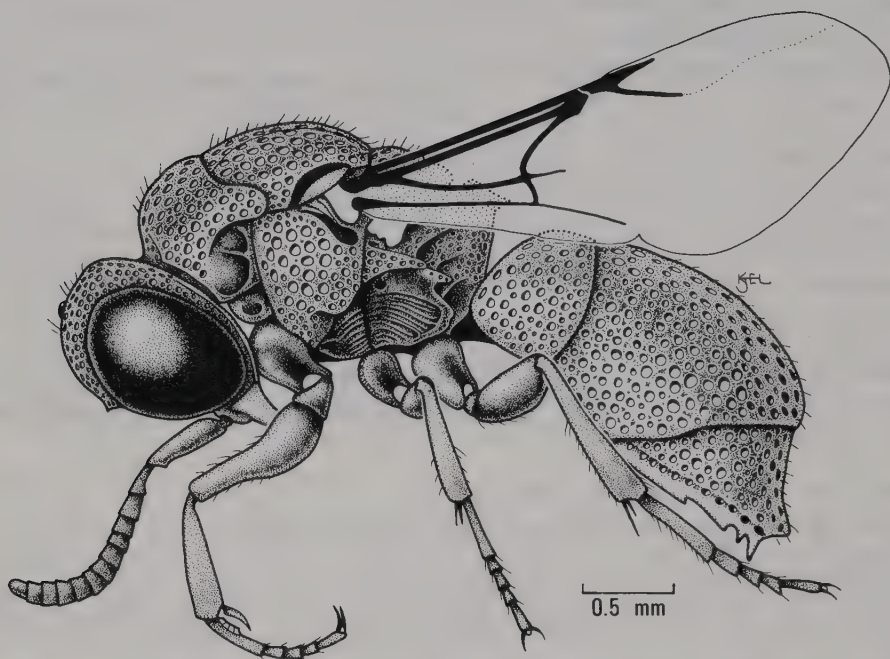


Fig. 121. *Gaullea argentina*, female.

depression weak, lateral depression deep; scutal notauli indicated by row of punctures; metanotum with short, flat, posteriorly projecting rim (Fig. 122*b*); mesopleuron weakly bidentate with one tooth above scrobal pit and second tooth below it, with omaulus and verticaulus, without scrobal or episternal sulci; fore wing Rs shorter than medial vein, discoidal cell absent (Fig. 121); propodeal angle slender, small, straight posteriorly; T-I broad with well-developed basomedial depression; T-II large, medial length 2.5 times lateral length, covering much of T-III; T-III with sharp prepit swelling overhanging pit row, eight sharp distal teeth (one pair lateral, three pairs apical); S-II spots forming transverse band. Male terminalia (Fig. 122*c*): S-VIII apparently unsclerotized, gonocoxa simple and weakly sclerotized, cuspis slender, digitus unusually broad.

## Hosts

Unknown

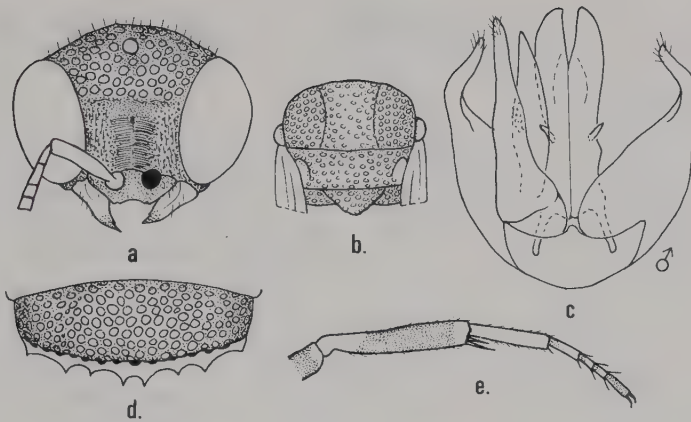


Fig. 122. *Gaullea argentina*. (a) face; (b) meso- and metanotum; (c) genital capsule, ventral, volsella omitted on right side; (d) T-III; and (e) hind tibia and tarsus, outer surface. Female, except as indicated.

## Distribution

*Gaullea* is known only from north central Argentina in the provinces of Santiago del Estero, Chaco, and Catamarca.

## Discussion

This monotypic genus seems to have no close relatives. White markings also occur in *Argochrysis*, *Spintharina*, *Spintharosoma*, *Brugmoia*, and a few Old World *Chrysis* but none of these have the eight sharp teeth on T-III and a mesopleuron without either scrobal or episternal sulci. The short Rs, undeveloped discoidal cell, and absence of a scrobal sulcus occur in a few other genera, notably *Primeuchroeus*, but there the similarity ends. The unusually long T-II and short T-III are a peculiarity in *Gaullea*. This genus is most likely parasitic on one of the endemic southern South American aculeate Hymenoptera.

## Checklist of *Gaullea*

*argentina* Buysson. Neotropical: e Argentina.

*argentina* Buysson 1910b:174. Holotype female; Argentina: Santiago del Estero, Icaño (PARIS).\*

*Ipsiura* Linsenmaier (Figs. 123 and 124)

*Ipsiura* Linsenmaier 1959a:74. Type: *Chrysis marginalis* Brullé 1846:41. Orig. desig.

**Generic diagnosis**

Small to medium-sized species (largest 12 mm long), often with a white basolateral spot on T-III (Fig. 123); scapal basin sunken, brow with strong TFC which is sometimes broken medially, but extends dorsally to define a mid ocellar area and lid over mid ocellus (Fig. 124c); F-I 1.8–2.0 times as long as broad, rarely 2.5 times; malar space 0.5–1.2 MOD; subantennal space 1.0–1.3 MOD; genal carina quite close to eye; subgenal area not defined; pronotum without a sulcus, laterally with deep depression beneath flange-like and nearly straight carina (Fig. 124b), anterior declivity punctate but without a pair of deep pits; fore wing Rs rounded posteriorly, bent away from costal margin apically, leaving marginal cell widely open (Fig. 123); metanotum simple, longitudinally crested, or with a short posteromedial projection; mesopleuron without scrobal sulcus, sometimes with one to several denticles; hind femur with basal pit; propodeal angle usually straight behind but with a small basoposterior notch; T-I anterolateral corners prominent and angulate; T-II posterolateral corners usually ob-

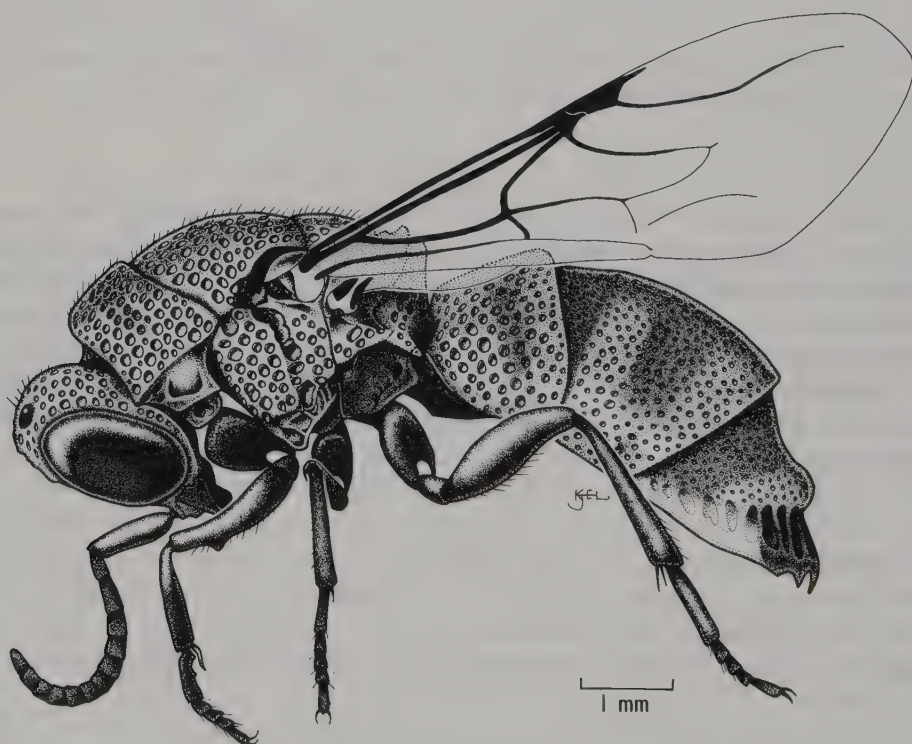


Fig. 123. *Ipsiura neolateralis*, female.



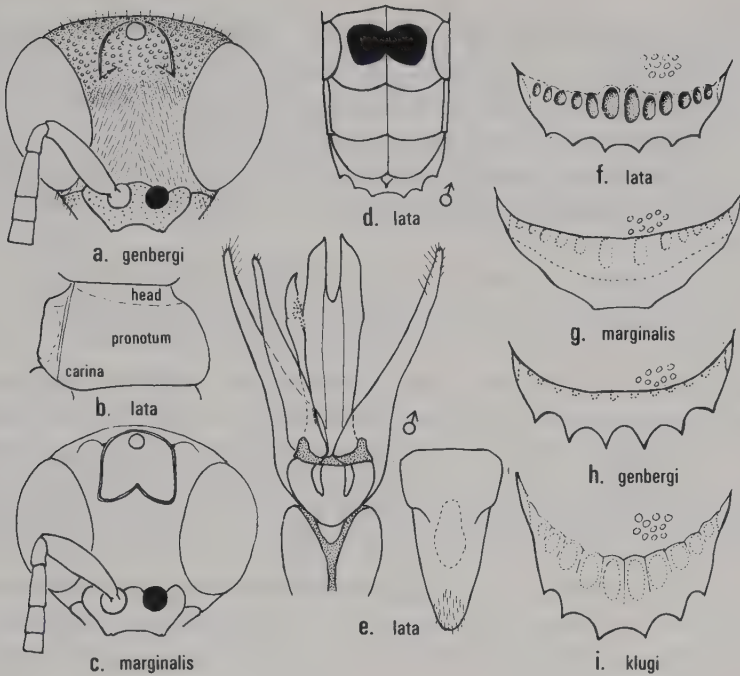


Fig. 124. *Ipsiura*. (a), ♀ face; (b) pronotum, oblique lateral; (d) abdominal sternum; (e) genital capsule, volsella omitted on right side, ventral (left), S-VIII (right); and (f)–(i) T-III, dorsal.

tuse; T-III pit row well developed or simply a crease (Fig. 124*f–i*), pits usually shallow and elongate, apex with two, four, or six teeth; S-II spots small to large, sexually dimorphic (Fig. 124*d*); S-III in female longer than S-II; male S-IV exerted, about two-thirds as long as S-III (Fig. 124*d*), at least faintly metallic; ovipositor usually simple; male S-VIII subtriangular and elongate; gonocoxa long and slender; digitus and cuspis subequal, long and slender; aedeagus slender and blunt apically (Fig. 124*e*).

## Hosts

These parasitoids prey on wasps that construct mud nests or occupy existing cavities, including *Eumenes* and *Pachodynerus* (Eumenidae), and *Trypoxylon* and *Sceliphron* (Sphecidae) (information from labels on pinned specimens).

## Distribution

*Ipsiura* occurs in the south-eastern USA, middle American, and all South American countries except Chile. However, it is essentially Neotropical with limited extension into the Nearctic Region.

## Discussion

Of the 37 species listed we have studied types or reliably determined material of all but six species described by Linsenmaier (December 1985). Type material of these has not been available to us, and some further synonymy may be necessary. In addition to the paper by Linsenmaier, critical reviews have been made at the generic level by Bohart (1985c), Kimsey and Bohart (1981), and Kimsey (1983, 1985). A species review with new species was given by Bohart (October 1985c), accounting for some of the synonymy mentioned above.

Along with its relatives, *Neochrysis*, *Pleurochrysis*, and *Exochrysis*, it seems to replace *Chrysis*, which is not nearly as well represented in the Neotropical Region as in the Nearctic.

The combination of broadly open marginal cell, complete and flange-like sublateral pronotal carina, exserted male S-IV, long female S-III, well-defined mid ocellar area, short malar space, lack of either anterior pronotal pits or medial longitudinal sulcus, and presence of hind femoral pits separate *Ipsiura* from all other genera. Among its close relatives, only the flange-like pronotal carina and shallow, broadly expanded pits on T-III provide an easy separation, since there are one or a few exceptions to the other characteristics. Even the exserted male S-IV is not absolute because at least four species of *Pleurochrysis* have this condition, as well as one South American species of *Chrysis* (*varia*). Furthermore, the number of teeth are not particularly helpful since they vary considerably. The basolateral white spot on T-III is found in most *Ipsiura* but it also occurs in some of the other closely related genera.

Within *Ipsiura* the species can be variously grouped, but somewhat arbitrarily. In addition to the number of teeth on T-III and the absence of a white spot on T-III, other characteristics involve the presence or absence of metanotal crests or projections, mesopleural dentition, size and position of S-II spots, shape (dentition) of the fore femur, and development of the prepit swelling of T-III.

## Checklist of *Ipsiura*

---

*affinissima* (Ducke). Neotropical: Brazil, Peru.

*affinissima* (Ducke) 1903:229. (*Chrysis*). Holotype male; Brazil: Pará (BELEM).\*

*bisulcata* (Ducke). Neotropical: Brazil.

*bisulcata* (Ducke) 1902b:100. (*Chrysis*). Syntype females; Brazil: Pará, Obidos (SAO PAULO).\*

*boliviana* Bohart. Neotropical: Bolivia.

*boliviana* Bohart 1985c:711. Holotype female; Bolivia: Santa Cruz, Pueblo Grether (LONDON).\*

*brevispina* (Ducke). Neotropical: Brazil.

*brevispina* (Ducke) 1911:102. (*Chrysis*). Holotype male; Brazil: Pará (SAO PAULO).\*

*cardiofera* (Linsenmaier). Neotropical: Argentina.

*cardiofera* (Linsenmaier) 1985:474. (*Neochrysis*). Holotype female; Argentina: Tucumán (LUZERN).

*catamarcae* Bohart. Neotropical: Brazil, Argentina.

*catamarcae* Bohart 1985c:713. Holotype female; Argentina: Catamarca, Los Nacimientos de Abajo (SALTA).\*

*sobrina* (Linsenmaier) 1985:474. (*Neochrysis*). Holotype female; Brazil: São Paulo (LUZERN).  
N. synonymy.

*cooperi* Bohart. Neotropical: Costa Rica.

*cooperi* Bohart 1985c:714. Holotype female; Costa Rica: Turrialba (WASHINGTON).\*

*covillei* Bohart. Neotropical: Mexico, Costa Rica, Peru, Brazil.

*covillei* Bohart 1985c:714. Holotype male; Costa Rica: Heredia, La Selva (DAVIS).\*

*ellampoides* (Ducke). Neotropical: n South America.

*ellampoides* (Ducke) 1902b:98. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Pará (PARIS).\*

*friesiana* (Ducke). Neotropical: Ecuador, Surinam, Brazil.

*friesiana* (Ducke) 1902b:99. (*Chrysis*). Lectotype male (desig. Bohart herein); Brazil: Pará (PARIS).\*

*fritzi* Bohart. Neotropical: Paraguay.

*fritzi* Bohart 1985c:715. Holotype female; Paraguay: Caragua (SALTA).\*

*genbergi* (Dahlbom). Neotropical: Ecuador to Argentina.

*genbergi* (Dahlbom) 1854:319. (*Chrysis*). Holotype female; Brazil (LUND).

*goeldi* (Ducke). Neotropical: Brazil, Argentina.

*goeldi* (Ducke) 1907:17. (*Chrysis*). Lectotype male (desig. Bohart herein); Brazil: Pará, Obidos (LONDON).\*

*albibasalis* (Mocsáry) 1913a:13. (*Chrysis*). Holotype female, Brazil: São Paulo (BUDAPEST).  
N. synonymy.\*

*irwini* Bohart. Neotropical and Nearctic: s Texas to El Salvador.

*irwini* Bohart 1985c:715. Holotype male; El Salvador: 4 mi n Quezaltepeque (DAVIS).\*

*klugi* (Dahlbom). Neotropical: Venezuela to Argentina.

*klugi* (Dahlbom) 1854:321. (*Chrysis*). Holotype male (not female); Brazil (COPENHAGEN).\*

*cristata* (Mocsáry) 1913a:13. (*Chrysis*). Holotype male, Brazil: Rio Grande (BUDAPEST). N.  
synonymy.\*

*laetiapicalis* (Linsenmaier). Neotropical: Bolivia.

*laetiapicalis* (Linsenmaier) 1985:477. (*Neochrysis*). Holotype male; Bolivia: Santiago (LUZERN).

*lata* Bohart. Neotropical: Brazil, Paraguay, Argentina.

*lateralis* (Brullé) 1846:26. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Paraná, Guaratuba (PARIS). Nec Dahlbom 1845.\*

*lata* Bohart 1985c:716. Holotype male; Brazil: Amazonas, Manaus (SAO PAULO).\*

*leucobasis* (Mocsáry). Neotropical: Mexico to Argentina.

*leucobasis* (Mocsáry) 1913a:12. (*Chrysis*). Holotype female; Brazil: Santa Cruz (BUDAPEST).\*

*leucocheila* (Mocsáry). Neotropical: Mexico to Bolivia.

*leucocheila* (Mocsáry) 1889:408. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Mexico (BUDAPEST).\*

*leucocheiloides* (Ducke). Neotropical: Peru, Bolivia, Paraguay.

*leucocheiloides* (Ducke) 1903:226. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Pará (PARIS).\*

*lilloi* Bohart. Neotropical: Brazil, Paraguay, Argentina.

*lilloi* Bohart 1985c:717. Holotype female; Argentina: Tucumán, Cadillal (SALTA).\*

*aemula* (Linsenmaier) 1985:477. (*Neochrysis*). Holotype female; Brazil: Santa Catarina, Nova Teutonia (LUZERN). N. synonymy.

*longiventris* (Ducke). Neotropical: Brazil.

*longiventris* (Ducke) 1907:17. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Pará, Obidos (SAO PAULO).\*

*marginalis* (Brullé). Neotropical: Surinam to Paraguay.

*marginalis* (Brullé) 1846:41. (*Chrysis*). Holotype female; French Guiana: Cayenne (PARIS).\*

*myops* (Buysson). Neotropical: Panama to Argentina.

*myops* (Buysson) 1904:264. (*Chrysis*). Holotype female; Argentina: Tucumán (PARIS).\*

*subtruncata* (Mocsáry) 1912b:577. (*Chrysis*). Holotype female, Brazil: Minas Gerais (BUDAPEST). N. synonymy.\*

*dehyalinata* (Linsenmaier) 1985:470. (*Neochrysis*). Holotype female; Brazil: Santa Catarina, Nova Teutonia (LUZERN). N. synonymy.

*neolateralis* (Bohart). Nearctic: e and s USA to El Salvador.

*neolateralis* (Bohart) 1966b:143. (*Neochrysis*). Holotype male; USA: Illinois, Franklin Co., West Frankfort (DAVIS).\*

*nigriventer* Bohart. Neotropical: s Texas to Brazil.

*nigriventer* Bohart 1985c:717. Holotype male; Mexico: Oaxaca, 23 mi s Matias Romero (DAVIS).\*

*oaxacae* Bohart. Neotropical: s Mexico to Brazil.

*oaxacae* Bohart 1985c:718. Holotype male; Mexico: Oaxaca, 23 mi s Matias Romero (DAVIS).\*

*dissidentata* (Linsenmaier) 1985:478. (*Neochrysis*). Holotype female; Brazil (LUZERN). N.



synonymy.

*obidana* Bohart. Neotropical: Bolivia, Brazil.

*obidana* Bohart 1985c:718. Holotype female; Brazil: Pará, Obidos (BELEM).\*

*obidensis* (Ducke). Neotropical: El Salvador, Bolivia, Brazil, Paraguay.

*obidensis* (Ducke) 1903:231. (*Chrysis*). Lectotype male (desig. Bohart herein); Brazil: Pará, Obidos (PARIS).\*

*anisitsii* (Brèthes) 1908:9. (*Chrysis*). Lectotype female (desig. Bohart herein); Paraguay: Asuncion (BUENOS AIRES). N. synonymy.\*

*anisitsi* (Bischoff) 1910:486. (*Hexachrysis*). Lectotype female (desig. Bohart herein); Paraguay: Asuncion (BERLIN). Nec Brèthes 1908. N. synonymy.\*

*pilifrons* (Cameron). Neotropical: Mexico to Brazil.

*pilifrons* (Cameron) 1888:465. (*Chrysis*). Holotype male; Panama (LONDON).\*

*stenops* (Mocsáry) 1889:571. (*Chrysis*). Lectotype female (desig. Bohart herein); Mexico: Tampico (GENEVA). N. synonymy.\*

*prolixa* Bohart. Neotropical: Brazil.

*prolixa* Bohart 1985c:718. Holotype male; Brazil: Pará, Obidos (BELEM).\*

*spiculella* Bohart. Neotropical: Brazil, Bolivia, Paraguay.

*spiculella* Bohart 1985c:719. Holotype male; Brazil: Minas Gerais, Barbacena (BELEM).\*

*superleucheila* (Linsenmaier) 1985:470. (*Neochrysis*). Holotype female; Bolivia: Santiago (LUZERN). N. synonymy.

*surinamensis* (Linsenmaier). Neotropical: Venezuela, Surinam, Brazil.

*surinamensis* (Linsenmaier) 1985:468. (*Neochrysis*). Holotype female; Surinam: Affobaka (LUZERN).

*teutoniaca* (Linsenmaier). Neotropical: Brazil.

*teutoniaca* (Linsenmaier) 1985:469. (*Neochrysis*). Holotype female; Brazil: Santa Catarina, Nova Teutonia (LUZERN).

*tropicalis* Bohart. Nearctic: Mexico to Argentina.

*tropicalis* Bohart 1985c:719. Holotype male; Mexico: Morelos 5 mi e Cuernavaca (DAVIS).\*

*amaurotica* (Linsenmaier) 1985:470. (*Neochrysis*). Holotype male; Brazil: Pará (LUZERN). N. synonymy.

*ulconota* (Linsenmaier). Neotropical: Peru.

*ulconota* (Linsenmaier) 1985:478. (*Neochrysis*). Holotype female; Peru: Tingo Maria (LUZERN).

*venezuelana* Bohart. Neotropical: Costa Rica, Venezuela, Brazil.

*venezuelana* Bohart 1985c:720. Holotype male; Venezuela: 6 km w La Concepcion (WASHINGTON).\*

*schlaeflei* (Linsenmaier) 1985:474. (*Neochrysis*). Holotype female; Venezuela (LUZERN). N. synonymy.

### *Neochrysis* Linsenmaier (Figs. 125 and 126)

*Neochrysis* Linsenmaier 1959:73. Type: *Chrysis punctatissima* Spinola 1840:200, nec Villers 1789 (= *Chrysis carina* Brullé 1846:35). Monobasic and orig. desig.

### Generic diagnosis

Mostly medium-sized wasps (4–11 mm long); scapal basin moderately hollowed and punctate, often polished toward middle, LID rarely greater than eye breadth; F-I usually twice as long as broad (range 1.4–2.5 times); TFC usually absent or irregular, rarely complete, brow often sharp (Fig. 126*a, c*); malar space 0.5–1.2 MOD; subantennal space about 1 MOD; mid ocellar area not defined or only partly so; mid ocellus not lidded; genal carina separated from eye by about 1 MOD; subgenal area not defined; pronotum with medial groove absent, most species without anterior pits, lateral depression deep, sublateral area rarely with a fine but partial carina; scutum coarsely punctate; fore wing marginal cell widely open, Rs somewhat short but sigmoid and bending away from costal margin (Fig. 125); hind femur with small basoventral pit; tarsi brown to metallic; metanotum simple or longitudinally walted; mesopleuron with strong omaulus but no scrobal sulcus, sometimes dentate below; propodeal angle

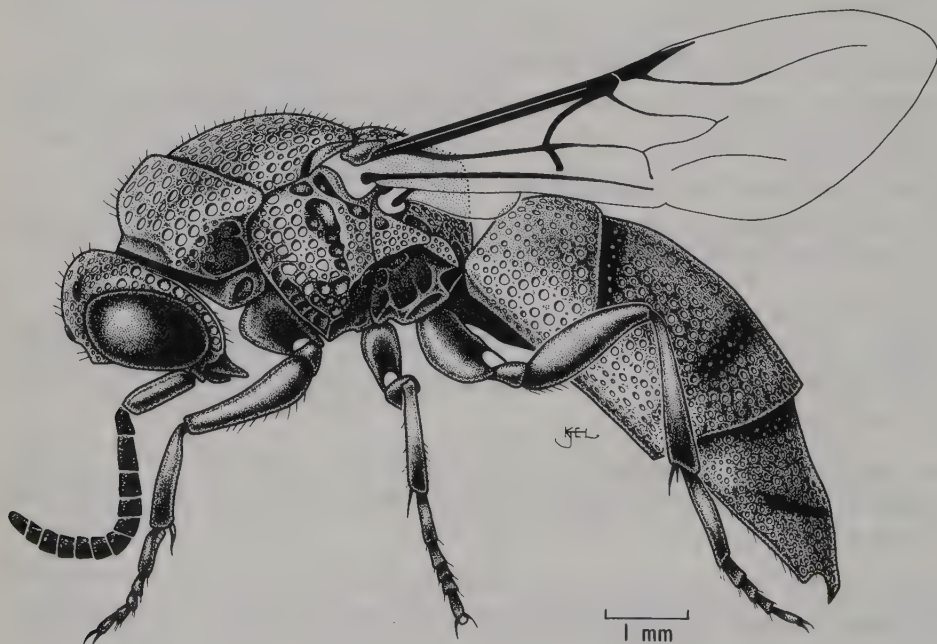


Fig. 125. *Neochrysis carina*, male.

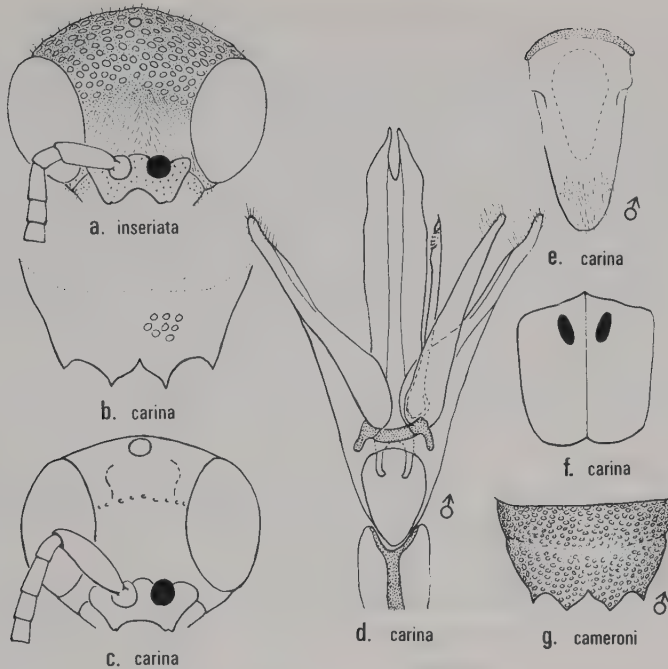


Fig. 126. *Neochrysis*. (a), (c) face; (b), (g) T- III, dorsal; (d) genital capsule, ventral, volsella omitted on left side; (e) S- VIII; and (f) S-II. Female, except as indicated.

convex behind; T-I anterolateral corners sharply rounded; T-II medial welt absent to strong and continued onto following tergum; T-III with four (Fig. 126b), or rarely six or eight apical teeth, punctation relatively uniform from middle to apex; many species with small to large basolateral whitish spot, pit row obsolescent, sometimes indicated by crease or a few lateral pits (Fig. 126g); S-II spots various; S-V–VI unmodified. Male terminalia: S-VIII long and shield-like (Fig. 126e); gonocoxa, digitus, cuspis, and aedeagus long and slender (Fig. 126d).

## Hosts

Some species of *Trypargilum* (Sphecidae) are common hosts (Coville 1981).

## Distribution

The 20 listed species are primarily in South America, but several occur in middle America and two as far north as southern Arizona.

## Discussion.

Kimsey (November 1985) revised the genus, naming two new species. In the following

month Linsenmaier (December 1985) also revised the genus, naming nine new species. The result was some synonymy, as well as interpretational differences. Linsenmaier treated the genus as three species groups (*punctatissima*, *transstriata*, and *mendozaana*) under *Neochrysis* as a generic concept including *Pleurochrysis*, *Exochrysis*, and *Ipsiura*. We consider the last three as genera distinct from *Neochrysis*. With respect to the nominal species of his three groups listed above, *punctatissima* has long been recognized as a homonym replaced by *carina*, *transstriata* is an obvious synonym of *tysis*, and *mendozaana* is a synonym of *jenseni*. In addition we do not agree with his identification of *cameroni*, his placement of *lecointei* as a questionable synonym of *carina*, or his treatment of *duckei*, *guedesi*, and *glabriceps* as valid species. Our decisions were arrived at by an examination of types, whereas his were apparently based on the original descriptions.

The close relationship of *Neochrysis*, *Pleurochrysis*, *Exochrysis*, and *Ipsiura* is borne out by the similarities in the male terminalia; all have the characteristic long shield-like S-VIII and the other elements slender. Together with the absence of a scrobal sulcus, this separates them from other chrysidid genera. Distinctions among the four genera were discussed by Kimsey (1985). In summary, all have no scrobal sulcus, Rs is sigmoid and curves away from the costal margin. *Neochrysis* has a basal pit on the hind femur, usually no pair of pits on the pronotal declivity, T-III pit row obsolete, and punctuation of T-III remarkably uniform throughout. *Ipsiura* has a flange-like sublateral carina on the pronotum, and basal hind femoral pit. *Exochrysis* has a medial tooth or projection high on the propodeum, a small basal pit on the hind femur, T-III punctuation not uniform throughout, and a discrete subgenal area. *Pleurochrysis* has no medial propodeal tooth (one exception), T-III punctuation is rarely uniform, the pit row is distinct at least medially and/or depressed below a prepit bulge, pronotal declivity with a pair of pits, and there is no basal hind femoral pit.

### Checklist of *Neochrysis*

---

*argentina* (Brèthes). Neotropical: Brazil, Argentina.

*argentina* (Brèthes) 1908:9. (*Chrysis*). Holotype female; Argentina: Misiones (BUENOS AIRES).\*

*arizonensis* Kimsey. Nearctic: sw USA (s Arizona).

*arizonensis* Kimsey 1982b:200. Holotype male; USA: Arizona, Santa Rita Mountains near Amado (WASHINGTON).\*

*bubba* Kimsey. Neotropical: Brazil.

*bubba* Kimsey 1985:278. Holotype female; Brazil: Nova Teutonia (DAVIS).\*

*cameroni* (Buysson). Neotropical: Panama to Brazil and Paraguay.

*cameroni* (Buysson) 1900:144. (*Chrysis*). Holotype female; Brazil: Bahia (Mus. ?).

*duckei* (Mocsáry) 1902a:343. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Brazil: Pará (BUDAPEST). N. synonymy.\*

*striafoveata* Linsenmaier 1985:438. Holotype female; Peru: Tingo Maria (TUCUMAN ?). N.



synonymy.

*carina* (Brullé). Neotropical: Mexico to Argentina.

*carina* (Brullé) 1846:35. (*Chrysis*) Syntype male, female; French Guiana: Cayenne (GENOA).\*

*fasciata* (Fabricius) 1804:175. (*Chrysis*). Syntype male, female; Guyana ('America meridionali') (COPENHAGEN). Nec Olivier 1790.\*

*punctatissima* (Spinola) 1840:200. (*Chrysis*). Syntype male, female; French Guiana: Cayenne (TURIN ?). Nec Villers 1789.

*guedesi* (Ducke) 1903:136. (*Chrysis*). Syntype male, female; Brazil (BELEM). N. synonymy.\*

*catarinensis* Linsenmaier. Neotropical: Brazil.

*catarinensis* Linsenmaier 1985:441. Holotype female; Brazil: Santa Catarina, Nova Teutonia (LUZERN).

*confusa* (Ducke). Neotropical: Mexico to Argentina.

*confusa* (Ducke) 1911:103. (*Chrysis*). Lectotype male (desig. Bohart herein); Brazil: Obidos (PARIS).\*

*deuteroleuca* (Mocsáry). Neotropical: Bolivia, Uruguay, Argentina.

*deuteroleuca* (Mocsáry) 1912b:578. (*Chrysis*). Holotype male; Brazil: Rio Grande do Sul, Santa Cruz (BUDAPEST).\*

*goyasensis* (Buysson). Neotropical: Brazil.

*goyasensis* (Buysson) 1904:264. (*Chrysis*). Holotype male; Brazil: Goyaz (PARIS).\*

*hubrichi* Linsenmaier. Neotropical: Argentina.

*hubrichi* Linsenmaier 1985:441. Holotype female; Argentina: Rosario de St. Fee (MUNICH).

*inseriata* (Mocsáry). Neotropical: Mexico to Argentina.

*inseriata* (Mocsáry) 1902a:342. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Brazil: Pará (BUDAPEST).\*

*glabriceps* (Ducke) 1903:227. (*Chrysis*). Holotype female; Brazil: Pará, Obidos (PARIS). N. synonymy.\*

*insuturalis* Linsenmaier. Neotropical: Surinam.

*insuturalis* Linsenmaier 1985:440. Holotype female; Surinam: Paramaribo (LUZERN).

*lecointei* (Ducke). Neotropical: Costa Rica to Argentina.

*lecointei* (Ducke) 1906:13. (*Chrysis*). Syntype male, female; Brazil: Pará, Obidos (BELEM).\*

*consectata* Linsenmaier 1985:439. Holotype female; Argentina: Entre Rios (LUZERN). N. synonymy.

*monotona* Linsenmaier. Neotropical: Argentina.

*monotona* Linsenmaier 1985:442. Holotype female; Argentina: Entre Rios (LUZERN).

*montezuma* (Cameron). Neotropical: Mexico to Costa Rica, Nearctic: sw USA (s Arizona).

*montezuma* (Cameron) 1888:463. (*Chrysis*). Holotype female; Mexico: Yucatan, Valladolid (LONDON).\*

*paraensis* (Ducke). Neotropical: Surinam, Brazil.

*paraensis* (Ducke) 1903:227. (*Chrysis*). Lectotype male (desig. Bohart herein); Brazil: Pará (SAO PAULO).\*

*planidorsa* Linsenmaier. Neotropical: Brazil.

*planidorsa* Linsenmaier 1985:440. Holotype female; Brazil: São Paulo (LUZERN).

*regularita* Linsenmaier. Neotropical: Argentina.

*regularita* Linsenmaier 1985:440. Holotype female; Argentina: Entre Rios (LUZERN).

*tysis* Kimsey. Neotropical: Colombia, Venezuela, Surinam.

*tysis* Kimsey 1985:278. Holotype female; Venezuela: Aragua, Ocumare de la Costa (WASHINGTON).\*

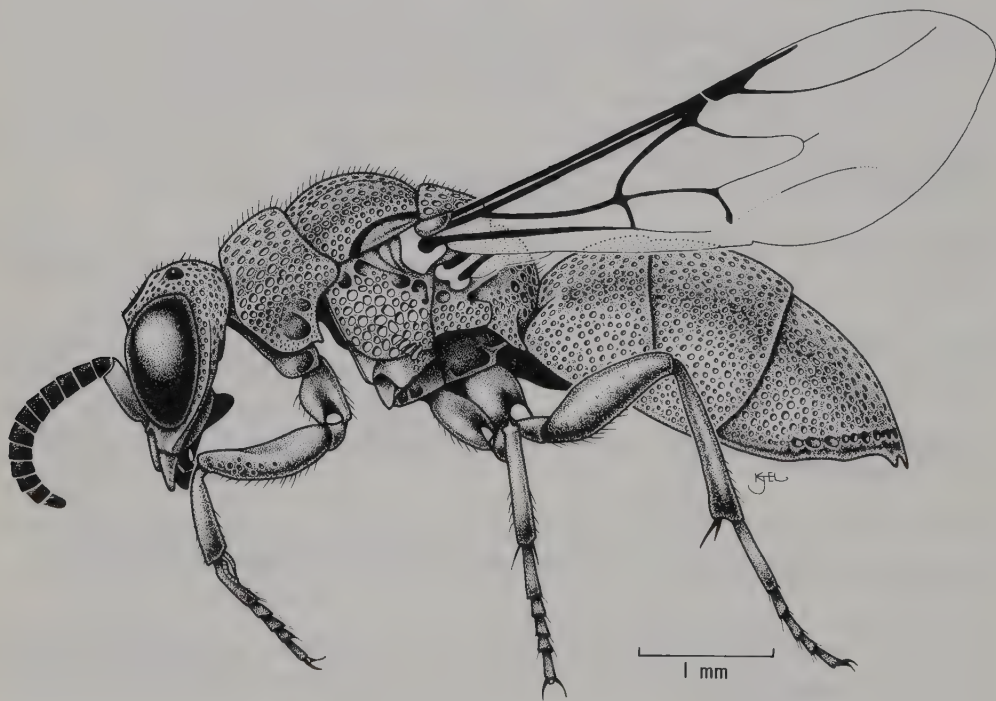


Fig. 127. *Odontochrydium irregulare*, female.

*transstriata* Linsenmaier 1985:454. Holotype female; Surinam: Paramaribo (LUZERN). N. synonymy.

*yuccatana* Linsenmaier. Neotropical: s Mexico.

*yuccatana* Linsenmaier 1985:438. Holotype female; Mexico: n Yucatan (LUZERN).

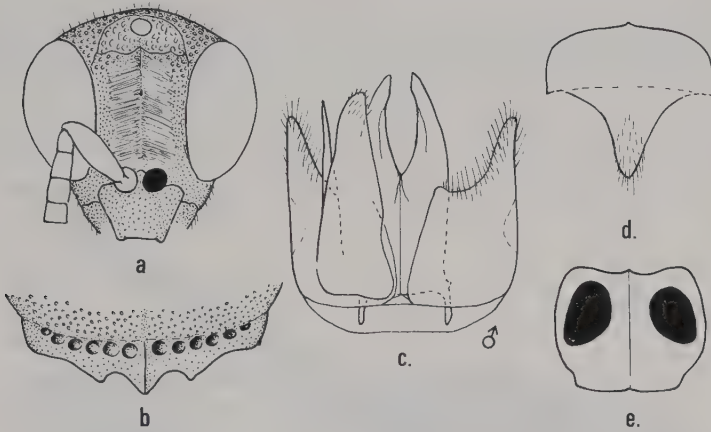


Fig. 128. *Odontobrydium irregulare*. (a) face; (b) T-III apical rim; ♂ genital capsule, ventral, volsella omitted on right side; (d) S-VIII; and (e) S-II. Female, except as indicated.

### *Odontobrydium* Brauns (Figs 8c, 127, and 128)

*Odontobrydium* Brauns 1928:389. Type: *Odontobrydium trautmanni* Brauns 1928:389 (= *Chrysis irregularis* Mocsáry 1914:60). Monobasic.

### Generic diagnosis

Face long and rectangular (Fig. 128a); head as long as broad; scapal basin extensively microridged; F-I length 1.3 times breadth in males and 1.5 times in females, shorter in both sexes than subantennal space which is 2.5–2.7 MOD; malar space 1.5 MOD; subgenal area absent; TFC slightly biconvex but nearly straight, extended by carina around mid ocellar area; mid ocellus lidded; pronotum with dorsal surface ending abruptly in front, about as long as scutellum; scutum expanded laterally and partly covering tegula; metanotum rounded; mesopleuron tridentate below; propodeal angle large, incurved behind; terga broad, T-II with sharp posterolateral corners; T-III lateral edge biconvex, curving inward to narrow tridentate apex (Fig. 128b); S-II spots lateral, rounded and well separated (Fig. 128e); male terminalia (Fig. 128c, d).

## Hosts

Unknown.

## Distribution

*Odontochrydium* is found only in eastern and southern Africa.

## Discussion

This peculiar genus does not seem to have any close relatives. The tridentate T-III



Fig. 129. *Pentachrysis amoena*, female.

might relate it to *Trichrysis* or other genera with a similar T-III, but the long face, lidded mid ocellus, and well-separated S-II spots argue against this. The unusually long clypeus separates *Odontochrydium* at once from all other genera with a three-toothed T-III.



The mid tooth of T-III is somewhat variable, usually sharp and with a median carina (*trautmanni*), but sometimes stouter and with only a trace of a carina (*irregulare*). Since intermediate stages occur, we have synonymized the two names. The species is usually green overall, but we have seen one female which is completely purple.

### Checklist of *Odontochrydium*

*irregulare* (Mocsáry). Afrotropical: Uganda and Kenya to South Africa.

*irregulare* (Mocsáry) 1914:60. (*Chrysis*). Holotype female; Tanzania: 'central Angoniland' (LONDON).\*

*trautmanni* Brauns 1928:389. Syntype male, female; South Africa: Natal Prov., Malvern (CAPE TOWN). N. synonymy.\*

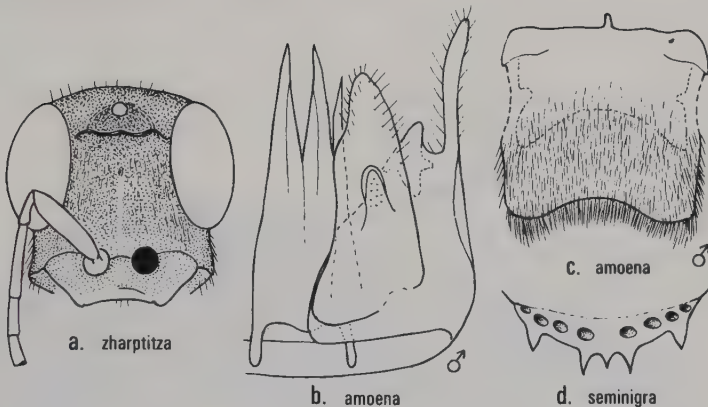


Fig. 130. *Pentachrysis*. (a) face; (b) right side of genital capsule, venter; ♂ S-VIII; and (d) T-III, dorsal.

### *Pentachrysis* Lichtenstein (Figs. 129 and 130)

*Pentachrysis* Lichtenstein 1876:227. Type: *Chrysis amoena* Eversmann 1857:562. Desig. by Ashmead 1902:226.

*Teratochrysis* Semenov 1912:198. Type: *Chrysis amoena* Eversmann 1857:562. Desig. by Bodenstein 1939b:132.

### Generic diagnosis

Moderately large, 9–10 mm long, abdominal markings brilliant; F-I 4–8 times breadth, at least 2 times pedicel, 1.6–2.0 times F-II or F-III; scapal basin concave,

weakly to moderately microridged; TFC strong, broadly M-like to triarcuate (Fig. 130*a*); malar space 2.5–3.5 MOD; subantennal space 2.0–3.5 MOD; mid ocellar area partly defined; mid ocellus unlidded; genal area prominent, flaring in female, subgenal area absent; pronotum slightly shorter than scutellum, medial depression broad and distinct, lateral depression deep; metanotum simple; mesopleuron strongly bidentate, with two teeth below scrobal sulcus, scrobal and episternal sulci present; propodeal lateral angle straight or incurved posteriorly; T-I broad, basomedial depression weak; T-II sharp posterolaterally; T-III with well-developed pit row, five sharp apical teeth (middle three close together (Fig. 130*d*)); S-II spots large, usually joined. Male terminalia (Fig. 130*b, c*): S-VIII broadly emarginate posteriorly and densely setose, gonocoxa with inner sub-basal hump and long dististyle; cuspis broad, digitus long and narrow; aedeagus simple and slender.

### Hosts

Unknown.

### Distribution

*Pentachrysis* is Palaearctic and Oriental. It occurs in Europe, North Africa, and the Middle East, with one species, *admiranda*, in Java.

### Discussion

Of the six listed species we have seen types or determined material of each. They are all characterized by the unusually long F-I, long malar and subantennal spaces, strongly bidentate mesopleuron, and five sharp teeth on T-III. Females have the genae flaring. Other genera with five T-III teeth are *Praestochrysis* and a few species of *Chrysis*. None of these have the combination of F-I 4–8 times breadth, five sharp and well-formed teeth on T-III, and a sharply bidentate mesopleuron. Linsenmaier (1959*a*) treated *Pentachrysis* as a subgenus of *Chrysis*, and included the *Chrysis inaequalis* group. These last species are similar in several respects to *Pentachrysis* as we restrict it. They have a slender F-I, bidentate mesopleuron, and sharp T-III teeth. However, the *inaequalis* group has only four teeth on T-III, the subantennal space is much shorter, and male terminalia are quite different. *Praestochrysis* has F-I much shorter, and the S-II spots are smaller as well as medial. In the *Chrysis oxygona* group there is often a medial fifth denticle on T-III. This minute tooth is nothing like that on *Pentachrysis*.

Markings on the abdomen of *Pentachrysis* are unusually striking. Several species have bright red spots edged with green on the purple T-II. In *zharptitza* the terga are brilliant green, red, and purple. This is certainly one of the most beautiful of all wasps.

## Checklist of *Pentachrysis*

*admiranda* (Mocsáry). Oriental: Indonesia, Java.

*admiranda* (Mocsáry) 1889:528. (*Chrysis*). Holotype male; Indonesia: Java, Batavia (BUDAPEST).\*

*amoena* (Eversmann). Palaearctic: e Europe to Mongolia.

*amoena* (Eversmann) 1857:562. (*Chrysis*). Type ?; Russian SFSR: 'campis transuralensibus' (KRAKOW ?).

*arrogans* (Mocsáry). Palaearctic: Greece, Turkey, Middle East.

*arrogans* (Mocsáry) 1889:532. (*Chrysis*). Holotype female; Turkey: Malaytia ('Malaria') (BUDAPEST).\*

*cyanescens* (Mocsáry) 1913a:1. (*Chrysis*). Lectotype male (desig. Bohart 1986b); Turkey: Bimbirkilisse (BUDAPEST).\*

*dolichostoma* (Buysson). Palaearctic: North Africa (nw Mauritania).

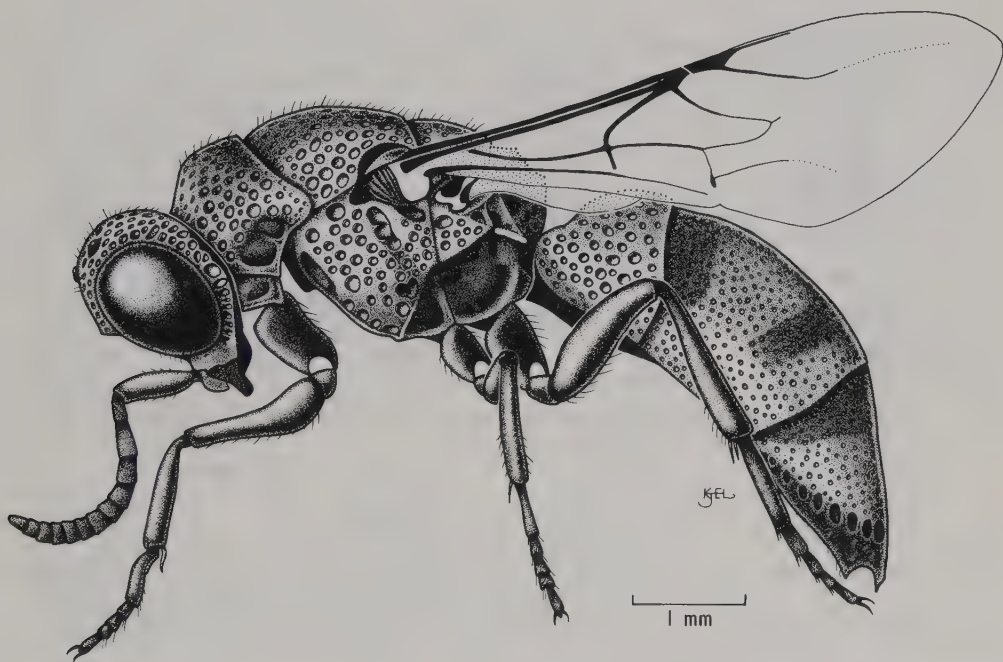


Fig. 131. *Pleurochrysis cavifrons*, female.

*dolichostoma* (Buysson) 1911:228. (*Chrysis*). Holotype male; Mauritania: Port Etienne (PARIS).\*

*seminigra* (Walker). Palaearctic: Europe, North Africa, Middle East, Pakistan.

*seminigra* (Walker) 1871:7. (*Chrysis*). Type ?; Egypt: Wadi Ferran (LONDON ?).

*goliath* (Abeille) 1878:6. (*Chrysis*). Holotype; Spain (PARIS ?).

*reparata* (Nurse) 1904:22. (*Chrysis*). Lectotype male, museum no.13.117 (desig. Bohart herein); Pakistan: Quetta (LONDON). N. synonymy.\*

*saudiarabica* (Linsenmaier) 1968:106. (*seminigra* ssp.). Holotype female; Saudi Arabia: El Riyadh (LUZERN).

*occidentica* (Linsenmaier) 1987:153. (*Chrysis seminigra* ssp.). Holotype male; Morocco: Marrakech (LUZERN).

*zharptitza* Semenov. Palaearctic: s USSR.

*zharptitza* Semenov 1912:198. Lectotype female (desig. Bohart herein); Turkmen SSR: Krasnovodsk (LENINGRAD).\*

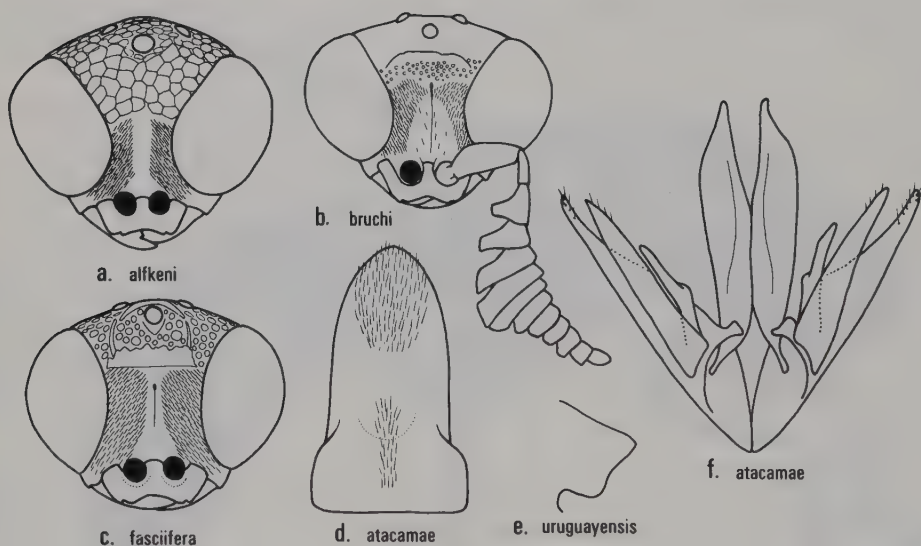


Fig. 132. *Pleurochrysis*, males. (a)–c face; (d) S-VIII; (e) propodeal angle; and (f) genital capsule, ventral.

### *Pleurochrysis* Bohart (Figs 131 and 132)

*Pleurocera* Guérin 1842:149. Nec Rafinesque 1818:355. Type: *Chrysis viridis* Guérin 1842:149, nec Olivier 1790 (= *Chrysis bruchi* Brèthes 1903:285). Monobasic.



*Pleurochrysis* Bohart 1966b:144. Repl. name for *Pleurocera* Guérin 1842:149.

*Brethesia* Linsenmaier 1985:461. Nec Schrottky 1909. Type: *Chrysis ameghinoi* Brèthes 1902:274. Orig. desig. and monobasic. N. synonymy.

*Exsecochrysis* Linsenmaier 1985:462. Type: *Neochrysis gracilia* Linsenmaier 1985:463 (= *Chrysis alfkeni* Ducke 1902b:97). Orig. desig. N. synonymy.

*Brethesiella* Linsenmaier 1987:144. Repl. name for *Brethesia* Linsenmaier 1985:461. N. synonymy.

## Generic diagnosis

Small to medium-sized (3–8 mm long); face moderately hollowed, finely punctate or polished medially, usually closely punctate toward eye margins (Fig. 132a–c); F-I length versus breadth 0.8 (some males) to 2.8 (some females), male flagellomeres often flattened and/or yellow, flabellate in one species; TFC usually straight but turned down laterally, sometimes absent; malar space 0.5–1.5 MOD; subantennal space 0.9–1.5 MOD rarely 2.0; mid ocellar area discrete in a few species; mid ocellus not lidded; subgenal area not defined; genal carina 0.75–1.0 MOD from eye; pronotum with medial groove usually absent, sometimes weak but not purplish, anterior declivity with two pits usually separated by polished area; fore wing marginal cell narrowed apically but Rs sigmoid and bending away from costal margin (Fig. 131), discoidal cell rarely incomplete; hind femur without basal pit; metanotum sometimes bulging or with an erect tooth; mesopleuron without scrobal sulcus, not denticulate below; propodeum rarely with medial denticle, lateral angle usually straight posteriorly, then notched at base (Fig. 132e); T-I usually sharp or sharply rounded anterolaterally; T-II medial ridge weak, polished or welter posteriorly; T-III with four, or less commonly six, apical teeth, sometimes whitish basolaterally, pit row depressed, rarely crease-like, post-pit punctuation nearly always finer than that of prepit area; S-II spots rounded and separated by two or more MOD. Male terminalia: S-VIII long and shield-like (Fig. 132d), genitalic elements long and slender (Fig. 132f) (except *morosa*).

## Hosts

*Pachodynerus gayi* (Spinola) (Eumenidae) is parasitized by *bruchi* (Janvier 1933). *Sceliphron* (Sphecidae) is the host of *postica* (label data).

## Distribution

Members of this genus occur throughout South and middle America as far north as Mexico. The majority of species occur in Argentina and Brazil.

## Discussion

Several important papers have dealt with this genus since its establishment by Guérin (1842) as subgenus *Pleurocera* (homonym) of *Chrysis*. Bohart (1966a) renamed it *Pleurochrysis* and placed it as a subgenus of *Neochrysis*, which Linsenmaier (1959a) had originally named as a subgenus of *Pleurocera*. Kimsey and Bohart (1981) gave a short summary of characters and included it (as a subgenus of *Neochrysis*) in a key to Neotropical genera. Kimsey (November 1985) elevated *Pleurochrysis* to a genus and dealt with it in detail. Linsenmaier (December 1985) in a generic revision, treated *Pleurochrysis* as several species groups of *Neochrysis* and split off *Neochrysis* (*Pleurochrysis*), as well as two new subgenera, *Brethesia* and *Exsecorchrysis*. Linsenmaier also described 17 new species, some of which are synonyms.

*Pleurochrysis*, as we constitute it, is the largest of the *Neochrysis*-like genera, containing 36 listed species. It comprises a diverse and heterogeneous group of species which generally lack derived characteristics, although they are clearly related. This variability is not unusual for a genus of this size. The absence of a scrobal sulcus, the bending of Rs away from the costal margin, the special form of the propodeal angle and the uniquely shaped male S-VIII adequately separate the genus from *Chrysis*, but not from the other *Neochrysis*-like genera. These distinctions are given in the discussion under *Neochrysis*.

Variations from the norm in species we have studied are: discoidal cell incomplete (*alfkeni*, *allotria*), propodeum with a medial denticle (*alfkeni*), T-III with six teeth (*bruchi*, *jenseni*), male flagellum flabellate (*bruchi*), pit row of T-III crease-like (*postica*), mid ocellar area discrete (*leucophrys*, *simulator*), metanotum with a nearly erect tooth (*acuta*, *dolosa*, *leucophrys*, *uruguayensis*), male flagellomeres flattened and yellow (*ameghinoi*, *ancilla*, *fasciifera*, *sur*), tarsi yellow (*alfkeni*, *allotria*, *sur*, male *uruguayensis*), and T-III whitish basolaterally (*acuta*, *alfkeni*, *charruana*, *leucophrys*, *postica*, *ypirangensis*).

## Checklist of *Pleurochrysis*

---

*acclinata* (Linsenmaier). Neotropical: Argentina.

*acclinata* (Linsenmaier) 1985:458. (*Neochrysis*). Holotype female; Argentina: Santa Fe (St. Fee) (LUZERN).

*acuta* (Brèthes). Neotropical: Venezuela to Argentina.

*acuta* (Brèthes) 1908:10. (*Chrysis*). Holotype male; Argentina: Buenos Aires, San Martin (BUENOS AIRES).\*

*alfkeni* (Ducke). Neotropical: Mexico to Uruguay.

*alfkeni* (Ducke) 1902b:97. (*Chrysis*). Lectotype female (desig. Bohart herein); Brazil: Pará, near Bragança (SAO PAULO).\*

*gracilia* (Linsenmaier) 1985:463. (*Neochrysis*). Holotype female; Brazil: Santa Catarina,

Nova Teutonia (LUZERN). N. synonymy.

*allotria* (Linsenmaier). Neotropical: Brazil.

*allotria* (Linsenmaier) 1985:463. (*Neochrysis*). Holotype male; Brazil: São Paulo (LUZERN).

*ameghinoi* (Brèthes). Neotropical: Bolivia, Argentina.

*ameghinoi* (Brèthes) 1903:274. (*Chrysis*). Holotype male; Bolivia: Tarija (BUENOS AIRES).\*

*ancilla* (Buysson). Neotropical: Brazil, Bolivia, Argentina.

*ancilla* (Buysson) 1898b:553. (*Chrysis*). Holotype female; Argentina: Santa Fe, La Plata (PARIS).\*

*atacamae* Kimsey. Neotropical: Chile.

*atacamae* Kimsey 1985:282. Holotype male; Chile: Atacama, 40–60 km s Copaiipo (DAVIS).\*

*bruchi* (Brèthes). Neotropical: Chile, Argentina.

*viridis* (Guérin) 1842:150. (*Chrysis*). Holotype male; Chile (GENOA). Nec Olivier 1790.\*

*bruchi* (Brèthes) 1903:285. (*Chrysis*). Lectotype female (desig. Bohart herein); Argentina: Neuquen (BUENOS AIRES).\*

*chilena* (Mocsáry) 1914:70. (*Chrysis*). Holotype female; Chile (LONDON). N. synonymy.\*

*cavifrons* (Brullé). Neotropical: Venezuela to Argentina.

*cavifrons* (Brullé) 1846:34. (*Chrysis*). Lectotype male (desig. Bohart herein); Argentina: Corrientes (PARIS).\*

*inclyta* (Mocsáry) 1889:398. (*Chrysis*). Holotype male; Brazil: Lagoa Sancta (HALLE). N. synonymy.

*brethesi* (Bischoff) 1910:459. (*Tetrachrysis*). Holotype female (not male); Paraguay: San Bernardino (BERLIN). N. synonymy.\*

*missionera* (Brèthes) 1903:273. (*Chrysis*). Holotype female; Argentina: Misiones (BUENOS AIRES). N. synonymy.\*

*inermis* (Brèthes) 1903:273. (*Chrysis missionera* var.). Holotype female; Paraguay (LA PLATA). N. synonymy.

*charruana* (Brèthes). Neotropical: Paraguay, Argentina.

*charruana* (Brèthes) 1903:203. (*Chrysis*). Holotype female; Argentina (BUENOS AIRES).\*

*angulimacula* (Linsenmaier) 1985:442. (*Neochrysis charruana* ssp.) Holotype female; Brazil: Rio Grande do Sul (LUZERN). N. synonymy.

*chilicola* (Mocsáry). Neotropical: Chile, n Argentina.

*chilicola* (Mocsáry) 1914:58. (*Chrysis*). Holotype female (not male); Chile: Santiago (BUDAPEST).\*

*distincta* (Linsenmaier). Neotropical: Argentina.

- distincta* (Linsenmaier) 1985:460. (*Neochrysis*). Holotype female; Argentina: Entre Rios (LUZERN).
- dolosa* (Buysson). Neotropical: Colombia to Argentina.
- dolosa* (Buysson) 1898a:135. (*Chrysis*). Holotype female; Argentina: 'Cordoba' (PARIS).\*
- fasciifera* (Bischoff). Neotropical: Paraguay, Uruguay, Argentina.
- fasciifera* (Bischoff) 1910:464. (*Tetrachrysis*). Holotype female; Argentina: Mendoza (BERLIN).\*
- feensis* (Linsenmaier). Neotropical: Argentina.
- feensis* (Linsenmaier) 1985:459. (*Neochrysis*). Holotype male; Argentina: Santa Fe ('St. Fee') (LUZERN).
- imbecilla* (Mocsáry). Neotropical: Peru, Brazil.
- imbecilla* (Mocsáry) 1889:344. (*Chrysis*). Lectotype female (desig. Bohart<sup>2</sup> herein); Brazil (VIENNA).\*
- indistincta* (Linsenmaier). Neotropical: Argentina.
- indistincta* (Linsenmaier) 1985:461. (*Neochrysis*). Holotype female; Argentina: Granja (MUNICH).
- jenseni* (Buysson). Neotropical: s Brazil, Argentina.
- jenseni* (Buysson) 1906a:18. (*Chrysis*). Holotype male; Argentina: Mendoza (COPENHAGEN).\*
- mendozana* (Mocsáry) 1913a:15. (*Chrysis*). Holotype female; Argentina: Mendoza (BUDAPEST). N. synonymy.\*
- lagopus* (Buysson). Neotropical: Paraguay, Argentina.
- lagopus* (Buysson) 1891:41. (*Chrysis*). Holotype male; Paraguay: Buenos Aires! (PARIS).\*
- latilateralis* (Linsenmaier). Neotropical: Colombia.
- latilateralis* (Linsenmaier) 1985:444. (*Neochrysis*). Holotype male; Colombia: Cienaga (LUZERN).
- leucophris* (Mocsáry). Neotropical: Peru, Brazil, Bolivia, Argentina.
- leucophris* (Mocsáry) 1889:409. (*Chrysis*). Holotype male; Brazil: Fonte Boa (BUDAPEST).\*
- limaca* (Linsenmaier). Neotropical: Peru.
- limaca* (Linsenmaier) 1985:460. (*Neochrysis*). Holotype female; Peru: Lima (LUZERN).
- longitarsis* (Linsenmaier). Neotropical: Argentina.
- longitarsis* (Linsenmaier). 1985:459. (*Neochrysis*). Holotype male; Argentina: Santa Fe ('St. Fee') (LUZERN).



*lynchi* (Brèthes). Neotropical: Uruguay, Argentina.

*lynchi* (Brèthes) 1903:282. (*Chrysis*). Holotype female; Argentina: Mendoza (BUENOS AIRES).\*

*quadridens* (Bischoff) 1910:491. (*Hexachrysis bruchi* var.). Holotype female; Uruguay: Montevideo (BERLIN). N. synonymy.\*

*morosa* (Buysson). Neotropical: Costa Rica to Argentina.

*morosa* (Buysson) 1901:102. (*Chrysis*). Holotype female; Brazil (VIENNA).\*

*sampaioi* (Ducke) 1911:100. (*Chrysis*). Holotype female; Brazil (BELEM). N. synonymy.\*

*adolphi* (Mocsáry) 1912b:574. (*Chrysis*). Holotype female; Brazil: Pará, Obidos (BUDAPEST). N. synonymy.\*

*nigridorsa* (Linsenmaier). Neotropical: Argentina.

*nigridorsa* (Linsenmaier) 1985:458. (*Neochrysis*). Holotype female; Argentina: Mendoza (LUZERN).

*paraguayana* (Linsenmaier). Neotropical: Paraguay.

*paraguayana* (Linsenmaier) 1985:459. (*Neochrysis*). Holotype female; Paraguay: Caazapa (LUZERN).

*parviapicalis* (Linsenmaier). Neotropical: Surinam.

*parviapicalis* (Linsenmaier) 1985:445. (*Neochrysis*). Holotype female; Surinam: Paramaribo (LUZERN).

*peruana* (Linsenmaier). Neotropical: Peru.

*peruana* (Linsenmaier) 1985:459. (*Neochrysis*). Holotype male; Peru: Huancayo (LUZERN).

*postica* (Brullé). Neotropical: s Mexico to Brazil.

*postica* (Brullé) 1846:36. (*Chrysis*). Holotype female; Brazil: Minas Gerais (PARIS).\*

*albomarginata* (Mocsáry) 1889:409. (*Chrysis*). Holotype male; Brazil: Rio de Janeiro (VIENNA). N. synonymy.\*

*hyalinata* (Mocsáry) 1912b:568. (*Chrysis*). Lectotype female (not male) (desig. Bohart herein); Costa Rica (SAO PAULO). N. synonymy.\*

*simulator* Kimsey. Neotropical: Venezuela to Argentina.

*simulator* Kimsey 1985:283. Holotype male; Brazil: Bahia: Vitoria da Conquista (DAVIS).\*

*sulcipleuralis* (Linsenmaier). Neotropical: Bolivia.

*sulcipleuralis* (Linsenmaier) 1985:444. (*Neochrysis*). Holotype female; Bolivia: Cochabamba (LUZERN).

*sur* Kimsey. Neotropical: Argentina.

*sur* Kimsey 1985:284. Holotype male; Argentina: La Rioja (SAN FRANCISCO).\*

*peculiarecornis* (Linsenmaier) 1985:458. (*Neochrysis*). Holotype female; Argentina: Santiago del Estero, Mascasin (LUZERN). N. synonymy.

*uruguayensis* Kimsey. Neotropical: Uruguay.

*uruguayensis* Kimsey 1985:285. Holotype male; Uruguay: Dept. Rio Negro, 15 km s Paysandu (NEW YORK) .\*

*venezuelensis* (Linsenmaier). Neotropical: Venezuela.

*venezuelensis* (Linsenmaier) 1985:448. (*Neochrysis*). Holotype female; Venezuela: Maracay (LUZERN).

*ypirangensis* (Buysson). Neotropical: Brazil.

*ypirangensis* (Buysson) 1904:265. (*Chrysis*). Holotype female; Brazil: São Paulo, Ypiranga (SAO PAULO) .\*

---

### *Praestochrysis* Linsenmaier (Figs 133 and 134)

*Praestochrysis* Linsenmaier 1959a:164. Type: *Chrysis shanghaiensis* Smith 1874b:460. Orig. desig.

### Generic diagnosis

F-I length 1.0–3.5 times breadth; flagellar segments nearly always conspicuously broadened (Fig. 134a); subantennal space usually about 1 MOD but never longer than and usually much shorter than malar space; subgenal area differentiated but not defined by carinae; head broader than long, often markedly broad (Fig. 134c); TFC present (or rarely only indicated) across strongly developed brow, often double or partly so; scapal basin without microridging; pronotum medially shorter than scutellum, rarely with a complete sublateral carina, lateral depression well developed and ridged, or irregularly roughened at bottom; metanotum often with a stout prominence or projection; fore wing marginal cell slender with Rs reaching or nearly reaching costal margin (Fig. 133); mesopleuron rough, subdentate, or rarely dentate, scrobal and episternal sulci well developed, former often much expanded medially; T-III apex with medial spine or well-marked denticle and four other teeth (Fig. 134d, e), rarely with an additional lateral tooth; S-II spots usually medial but never more than 1.3 MOD apart. Male terminalia (Fig. 134g, h): S-VIII usually subtriangular but occasionally lengthened or narrowed in apical half; gonocoxa stout, notched apically, or excavate, sometimes with gonostyle; cuspis moderately broad; aedeagus simple toward apex or expanded.

### Hosts

Most of these wasps are parasitic on a variety of large moths in the family Limacodidae (Piel 1933, Edney 1954b, Parker 1936, Iwata 1963, Polaszek 1987). Identified moth



Fig. 133. *Praestochrysis shanghaiensis*, female.

hosts include: *Parasa*, *Monema*, *Thosea*, *Darna*, *Contheyla*, and *Coenobasis* (Limacodidae). *Praestochrysis lusca* and *megerlei* are described from Italy but are very rare in this region, and *lusca* is actually common in the Oriental and Australian Regions. Exceptions in hosts are *Pison* sp. (Sphecidae) for *inops*, and eumenids for *lusca* (label data). The parasitic behavior of *shanghaiensis* has been discussed by Yamada (1987a, b).

## Distribution

Of the 44 species now recognized, 27 occur in the Afrotropical Region, 13 in the Oriental Region, a single species in the Australasian Region (plus *lusca*), and in the Palaearctic Region (plus *lusca*). It appears that *lusca* was originally an Oriental species but man has transported it to the Palaearctic (Italy) and Pacific Basin (New Guinea, Australia, and Hawaii).

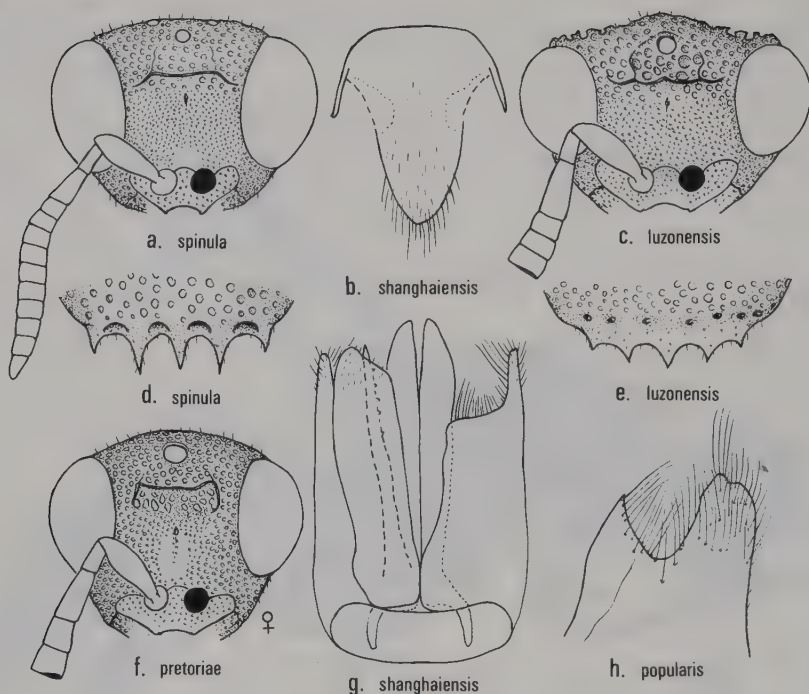


Fig. 134. *Praestochrysis*. (a), (c), (f) face; (b) S-VIII; (d), (e) T-III apical rim; (g) genital capsule, ventral, volsella omitted from right side; and (h) gonocoxal apex. Male, except as indicated.

## Discussion

The only other genus with five sharp teeth on the apex of T-III is *Pentachrysis* which has F-I quite long and slender, the subantennal distance more than 1 MOD, and the head not broader than long. A few *Chrysis* may have a tiny medial denticle on the T-III apex, but these differ in many ways including a longer subantennal distance.

The species of *Praestochrysis* can be divided in many ways on the basis of various characters, but the resulting assemblages do not seem to be phylogenetically sound. Therefore, species groups are not proposed.

There are considerable variations from several of the characters given in the generic diagnosis. The pronotum may have a complete sublateral carina (*lusca*, *inevitabilis*). The metanotum may have no projection or only a slight one (*africana*, *inops*, *libita*, *lusca*, *micromorpha*, *nidia*, *amoenula*, *furcifer*, *megerlei*); or a small spine (*spina*, *coutierei*, *ivoriana*, *townesorum*, *tropica*); or a large pointed projection (*bequaerti*, *bombycida*, *gambica*, *leechi*, *prorata*, *pretoriae*). The malar space may be less than 1.5 MOD (*bombycida*, *septidens*). The flagellum may not be broadened (*megerlei*, *inops*, *lusca*). A lateral tooth may increase to seven the number of teeth on T-III (*septidens*, *inevitabilis*). F-I may be shorter than



F-II and F-III together (*guineae*, *inops*, *spina*, *amoenula*, *megerlei*). The mesopleuron may have one strong tooth (*dentipes*, *gambica*), or two such teeth (*crassiscuta*). One quite unusual species has the pronotal dorsum mostly smooth with four low humps (*luzonensis*). Interestingly, the vertex of this species has red reflections as in so many other Philippine chrysidid endemics.

Bohart (1986a) gave a key to the species of the Afrotropical Region, and described nine species as new. This was followed by descriptions of a new species from the Afrotropical Region, two new species from the Oriental Region, and notes on other Oriental species (Bohart 1987a).

### Checklist of *Praestochrysis*

---

*africana* (Buysson). Afrotropical: Congo, Nigeria, Togo.

*africana* (Buysson) 1893:250. (*Chrysis*). Holotype female (not male); Congo (PARIS).\*

*amoenula* (Mocsáry). Oriental: India.

*amoenula* (Mocsáry) 1899:487. (*Chrysis*). Holotype female; India: Maharashtra, Sangli (BUDAPEST).\*

*audax* (Edney). Afrotropical: Zambia.

*audax* (Edney) 1962:865. (*Chrysis*). Holotype female; Zambia: Abercorn (CAPE TOWN).

*australasiae* (Gribodo). Australian: Australia.

*australasiae* (Gribodo) 1874:360. (*Chrysis*). Lectotype male (desig. Bohart herein); Australia: 'Nova Holle' (COPENHAGEN).\*

*bequaerti* Bohart. Afrotropical: Zaire.

*bequaerti* Bohart 1986a:148. Holotype female; Zaire: Katanga, Lubumbashi (CAMBRIDGE).\*

*bombycida* (Mocsáry). Afrotropical: South Africa.

*bombycida* (Mocsáry) 1902a:344. (*Chrysis*). Lectotype male (desig. Bohart herein); South Africa: Bothaville (OFS) (PRETORIA-TM).\*

*clotho* (Mocsáry). Afrotropical: Tanzania to South Africa.

*clotho* (Mocsáry) 1913a:5. (*Chrysis*). Holotype female; South Africa: Natal, Howick (BUDAPEST).\*

*coutierei* (Buysson). Palaearctic: e Ethiopia, n Somalia.

*coutierei* (Buysson) 1898c:272. (*Chrysis*). Holotype female; Somalia: Djibouti (PARIS).\*

*crassiscuta* (Mocsáry). Oriental: Thailand, Malaysia, Indonesia.

*crassiscuta* (Mocsáry) 1889:524. (*Chrysis*). Lectotype female (desig. Bohart herein); India: 'Orientalis' (GENEVA).\*

*dentica* Bohart. Afrotropical: Zaire, Malawi.

- dentica* Bohart 1986a:148. Holotype male; Zaire: 12 mi n Bukama (SAN FRANCISCO).\*
- elevata* (Mocsáry). Afrotropical: e Ethiopia, Gambia, Senegal.
- elevata* (Mocsáry) 1913a:4. (*Chrysis*). Lectotype male (desig. Bohart 1986b); Ethiopia: Eritrea, Asmara (BUDAPEST).\*
- fumipennis* (Smith). Oriental: Indonesia (Celebes and Sunda Isls.).
- fumipennis* (Smith) 1860:67. (*Chrysis*). Holotype female; Celebes: Makassar (OXFORD).\*
- furcifera* (Bingham). Oriental: Burma.
- furcifera* (Bingham) 1903:480. (*Chrysis*). Holotype female (not male); Burma: Mandalay (BUDAPEST).\*
- gambica* Bohart. Afrotropical: Gambia, Sierra Leone.
- gambica* Bohart 1986a:151. Holotype female; Gambia: 6 km n Kartung (LUND).\*
- gaullei* (Buysson). Afrotropical: Zaire, Tanzania, Botswana.
- gaullei* (Buysson) 1898a:142. (*Chrysis*). Holotype male; 'Afrique centrale' (PARIS).\*
- guineae* (Bischoff). Afrotropical: Guinea, Uganda.
- guineae* (Bischoff) 1910:484. (*Pentachrysis*). Holotype female; Guinea (BERLIN).\*
- inevitabilis* (Buysson). Afrotropical: Congo.
- inevitabilis* (Buysson) 1898a:145. (*Chrysis*). Holotype female; Congo (PARIS).\*
- inops* (Gribodo). Afrotropical: Senegal and Uganda to South Africa.
- inops* (Gribodo) 1884a:318. (*Chrysis*). Syntype male, female; 'equat. Africa', South Africa: Cape of Good Hope (GENOA ?).
- leira* (Cameron) 1906b:416. (*Pentachrysis*). Holotype female; South Africa: 'Cape Colony' (LONDON). N. synonymy.\*
- natalica* (Mocsáry) 1913a:2. (*Chrysis*). Lectotype female (desig. Bohart 1986b); South Africa: Natal, Howick (BUDAPEST). N. synonymy.\*
- nigeriaca* (Mocsáry) 1913a:1. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Nigeria: Shonga (BUDAPEST).\*
- pentodon* (Mocsáry) 1913a:3. (*Chrysis*). Holotype male; South Africa: Cape Prov., Riverdale (BUDAPEST). N. synonymy.\*
- jone* (Mocsáry) 1914:59. (*Chrysis*). Holotype female; Zimbabwe: 'Nyassaland' (LONDON). N. synonymy.\*
- ivoriana* Bohart. Afrotropical: Ivory Coast.
- ivoriana* Bohart 1986a:151. Holotype female; Ivory Coast (DAVIS).\*
- lachesis* (Mocsáry). Oriental: Taiwan.
- lachesis* (Mocsáry) 1913a:7. (*Chrysis*). Holotype male; Taiwan: Taihorisho (BUDAPEST).\*
- lamborni* Bohart. Afrotropical: Malawi.
- lamborni* Bohart 1987a:45. Holotype male; Malawi: Mangoche (Fort Johnson) (OXFORD).\*

*leechi* Bohart. Afrotropical: Tanzania.

*leechi* Bohart 1986a:151. Holotype male; Tanzania: 16 mi se Sumbawanga (SAN FRANCISCO).\*

*libita* (Buysson). Oriental: India.

*libita* (Buysson) 1896:476. (*Chrysis*). Lectotype male (desig. Bohart herein); India: Bombay, Poona (PARIS).\*

*lusca* (Fabricius). Palaearctic; Italy, Japan, Mauritius; Oriental: India to Thailand; Australian: Papua New Guinea; Hawaii.

*lusca* (Fabricius) 1804:171. (*Chrysis*). Holotype female; Italy (COPENHAGEN).

*imperiosa* (Smith) 1874b:460. (*Chrysis*). Lectotype female (desig. Bohart herein); Australia: Queensland, Moreton Bay (LONDON). N. synonymy.\*

*concinna* (Gribodo) 1884b:368. (*Chrysis lusca* var.). Holotype female; Burma ('Birmaniam') (GENOA).\*

*bengalensis* (Mocsáry) 1889:527. (*Chrysis*). Holotype female; India: Madras, Bombay (BUDAPEST). N. synonymy.\*

*papuana* (Cameron) 1906a:49. (*Pentachrysis*). Holotype female; New Guinea: Manokwari (LONDON ?). N. synonymy.

*dolichoceras* (Bischoff) 1910:485. (*Pentachrysis*). Holotype female; Japan: Nagasaki (BERLIN). N. synonymy.\*

*extraniens* (Rohwer) 1921a:68. (*Chrysis*). Holotype female; USA: Hawaii, Oahu, Honolulu (WASHINGTON). N. synonymy.\*

*occulta* (Mader) 1939:93. (*Chrysis*). Type ?, Italy: Lombardia (erroneous locality acc. Linsenmaier 1959a) (Mus. ?).

*cupreidorsus* (Tsuneki) 1963b:2. (*Chrysis*). Holotype female; Thailand: Muanfang (SASAYAMA). N. synonymy.

*luzonae* Bohart. Oriental: Philippines.

*luzonae* Bohart 1987a:46. Holotype male; Philippines: Luzon, Los Banos (DAVIS).\*

*megerlei* (Dahlbom). Palaearctic: France to Yugoslavia.

*megerlei* (Dahlbom) 1854:297. (*Chrysis*). Type ?; Italy: Verona (TURIN ?).

*euchroma* (Mocsáry) 1902a:345. (*Chrysis*). Holotype male; Hungary (BUDAPEST).\*

*micromorpha* (Mocsáry). Afrotropical: South Africa.

*micromorpha* (Mocsáry) 1908a:522. (*Chrysis*). Holotype male; South Africa: Transvaal, Lichtenborg (PRETORIA-TM).\*

*nidia* (Mocsáry). Afrotropical: Zaire and Zambia to South Africa.

*nidia* (Mocsáry) 1914:58. (*Chrysis*). Holotype female; Zambia (LONDON).\*

*nigromaculata* (Bischoff). Afrotropical: Guinea, Uganda.

*nigromaculata* (Bischoff) 1910:483. (*Pentachrysis*). Lectotype female (desig. Bohart herein); Guinea: n. Kolestangan (BERLIN).\*

*palawanensis* (Mocsáry). Oriental: India to s Philippines.

*palawanensis* (Mocsáry) 1899:487. (*Chrysis*). Holotype female; Philippines: Palawan Isl. (BUDAPEST).\*

*binghami* (Mocsáry) 1913a:6. (*Chrysis*). Holotype female; 'India orientalis' (BUDAPEST). N. synonymy.\*

*pentodontophora* (Bischoff). Afrotropical: Guinea, Kenya.

*pentodontophora* (Bischoff) 1910:484. (*Pentachrysis*). Holotype female; Guinea (BERLIN).\*

*popularis* (Edney). Afrotropical: Zaire to Zimbabwe.

*popularis* (Edney) 1954b:630. (*Chrysis*). Syntype males, females; Zimbabwe (CAPE TOWN?).

*pretoriae* Bohart. Afrotropical: South Africa.

*pretoriae* Bohart 1986a:152. Holotype male; South Africa: Transvaal, Pretoria (PRETORIA-TM).\*

*prorata* (Edney). Afrotropical: Zaire to South Africa.

*prorata* (Edney) 1954b:628. (*Chrysis*). Holotype male; South Africa: Bedford Ridge (LONDON).\*

*ribbei* (Mocsáry). Oriental: Thailand, Indonesia (Celebes).

*ribbei* (Mocsáry) 1889:524. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Celebes (BUDAPEST).\*

*saegerae* Bohart. Afrotropical: Zaire.

*saegerae* Bohart 1986a:152. Holotype female; Zaire (TERVUREN).\*

*sarawakensis* (Mocsáry). Oriental: Borneo (Sarawak).

*sarawakensis* (Mocsáry) 1914:61. (*Chrysis*). Holotype female; Borneo: Sarawak (LONDON).\*

*septidens* Bohart. Afrotropical: Kenya.

*septidens* Bohart 1986a:152. Holotype female; Kenya: Kiwi Beaches (COPENHAGEN).\*

*shanghaiensis* (Smith). Palaearctic: India to China and Korea.

*shanghaiensis* (Smith) 1874b:460. (*Chrysis*). Holotype female; China: Shanghai (LONDON).\*

*himalayensis* (Radoszkowski) 1888:31. (*Chrysis*). Holotype male; 'Himalaya' (KRAKOW ?). N. synonymy.

*mandarina* (Mocsáry) 1889:522. (*Chrysis*). Holotype female; China (borealis): Ta-tschian-sy (BUDAPEST). N. synonymy.\*

*spectabilis* (Mocsáry). Oriental: Indonesia (Celebes).

*spectabilis* (Mocsáry) 1889:525. (*Chrysis*). Holotype female; Celebes: Bantimurang (BUDAPEST).\*

*spina* (Brullé). Afrotropical: e Ethiopia and Senegal to South Africa.

*spina* (Brullé) 1846:29. (*Chrysis*). Holotype male; Senegal (PARIS).\*

*abyssinica* (Radoszkowski) 1876b:148. (*Chrysis*). Type ?, Ethiopia ('Abyssinie') (KRAKOW ?). N. synonymy.



*kibonotoensis* (Cameron) 1910b:298. (*Pentachrysis*). Holotype male (not female); Tanzania: Kilimanjaro, Kibonoto (STOCKHOLM). N. synonymy.\*

*spinula* Bohart. Oriental: Sri Lanka.

*spinula* Bohart 1987a:48. Holotype male; Sri Lanka (DAVIS).\*

*townesorum* Bohart. Afrotropical: South Africa.

*townesorum* Bohart 1986a:153. Holotype male; South Africa: Natal, St. Lucia Estuary (GAINESVILLE-AEI).\*

*tropica* (Mocsáry). Afrotropical: Gabon.

*tropica* (Mocsáry) 1899:486. (*Chrysis*). Holotype female; Gabon (BUDAPEST).\*

### *Primeuchroeus* Linsenmaier (Figs 8a, d, 135, 136)

*Primeuchroeus* Linsenmaier 1968:38. Type: *Chrysis papuana* Mocsáry 1899:484 (= *papuanius* Linsenmaier 1959a:171). Orig. desig. and monobasic.

*Papuachrysis* Linsenmaier 1968:52. Type: *Chrysis alces* Linsenmaier 1968:52. Orig. desig.

### Generic diagnosis

Mostly small species (3–9 mm long); face flat to rather deeply hollowed, usually with fine cross-ridging; TFC often a down-curved crescent, sometimes apparently double, or with posterior branches, rarely flat or absent (Fig. 136n–p); male F-I 1–2 times as long as broad, female 1.5–3.5 times as long as broad, and at least as long as F-II or pedicel; malar space 0.3–2.5 MOD; subantennal space 0.5–2.0 MOD; mid ocellus rarely lidded; subgenal area defined by carinae sometimes present; pronotum shorter than scutellum, hardly grooved medially, lateral depression weak or strong, lateral margin in dorsal view often concave, sometimes strongly so, anterior declivity with two pits; fore wing discoidal cell usually faint outwardly, sometimes complete in large specimens or species; Rs short and ending abruptly, short but continued by pigmentation, or nearly complete and ending near anterior wing margin (Figs. 135 and 136a–c); metanotum simple (except one African species); mesopleuron with omaulus, no scrobal sulcus (Fig. 135), propodeal angle slightly concave to convex posteriorly; terga usually maculate; T-I prominent anterolaterally but rounded; T-II rounded or obtusely angled anterolaterally; T-III edentate, toothed basolaterally or submedially and/or toothed apicomediaally, sometimes convex basolaterally, rarely tridentate at apex (Fig. 136d–i); female T-IV with coarse ridges and T-V ending in sharp apical tooth; S-II with round, long oval, or nearly linear, spots separated by 3–6 MOD; male S-VIII with relatively long mediobasal attachment (Fig. 136k); gonocoxa stout basally and short apically, surpassed by large cuspis (Fig. 136j).

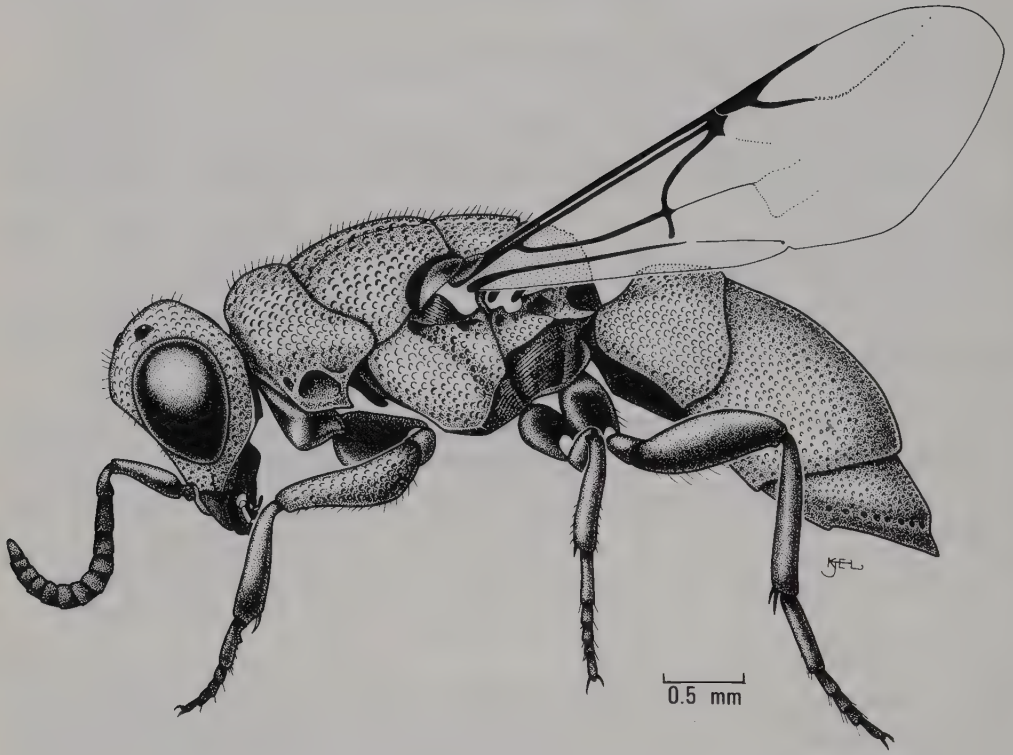


Fig. 135. *Primeuchroeus reversus*, male.

### Hosts

Data labels on *kriechbaumeri* and *relegatus* indicate rearings from nests of *Pison* sp. (Sphecidae, Larrinae).

### Distribution

Of the 32 species listed, 17 are known only from Australia; four occur in Australia as well as Papua New Guinea; four are restricted to the New Guinea–New Caledonia area; five are Oriental from India to Taiwan; one occurs in Malaysia, North Borneo, and Irian (W. New Guinea), and one is found in the Afrotropical Region. Therefore, 31 species are in the Oriental and Australian Regions, and a single species is in the Afrotropical Region.

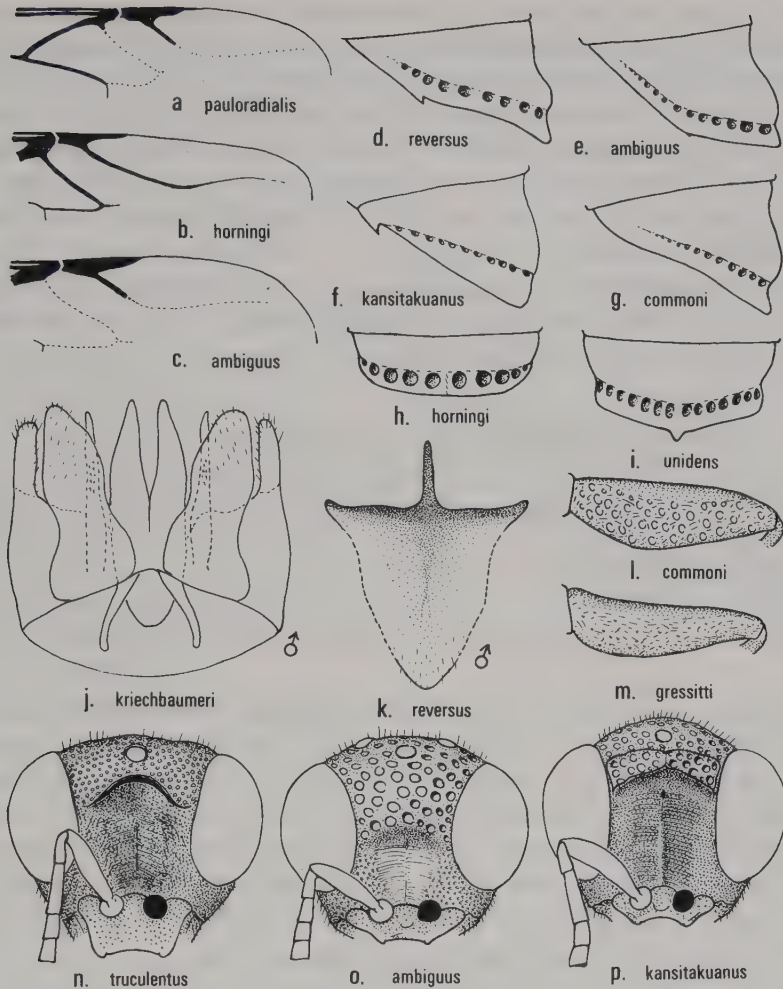


Fig. 136. *Primeuchroeus*. (a)–(c) fore wing detail; (d)–(g) T-III, lateral; (h), (i) T-III, dorsal; (j) genital capsule; (k) S-VIII; (l), (m) fore femur, outer surface; and (n)–(p) face. Female, except as indicated.

## Discussion

In a recent paper Linsenmaier (1982) described 15 new species referable to this genus based on a small collection, most of which came from Rostrevor, South Australia. Examination of type material of seven of Linsenmaier's species, as well as his keys, descriptions, and figures, indicate that he placed too much reliance on variable characters. Consequently, some of his species are synonyms of earlier names. Linsenmaier treated *Primeuchroeus* as a subgenus of *Euchroeus* (= *Brugmoia*) because the marginal cell of the fore wing is often incomplete. However, distal traces of Rs end on the anterior wing margin in many species, and make the 'open' condition a technicality.

Most other features, such as the incomplete discoidal cell and usually simple posterior margin of T-III, occur in other genera. A unique feature of *Primeuchbroeus* not mentioned by Linsenmaier is the relatively simple mesopleuron (Fig. 135). In nearly all other Chrysidini this area is bisected by the scrobal sulcus. Another distinctive characteristic, which can only be seen on a dissected mount, is the oddly shaped male S-VIII (Fig. 136*k*), with its long mediobasal attachment. In addition, we have seen a number of Australian specimens which we are unable to identify, and additional species will doubtless have to be named.

Bohart (1988*b*) divided the genus into five species groups. The spindle-like S-VIII, and short dististyle surpassed by a large cuspis are found in all the species groups, and emphasize their relatively close relationship.

### KEY TO PRIMEUCHROEUS SPECIES GROUPS

- 
- |   |   |
|---|---|
| 1. Subgenal area roughly triangular and defined by genal and subgenal carinae | 2 |
| Subgenal area not defined   | 3 |
- 
- |  |                               |
|--|-------------------------------|
| 2. Rs about two-thirds as long as stigma, and ending abruptly (Fig. 136 <i>a</i> )     |                               |
|  | <i>siamensis</i> group, p.540 |
| Rs more than two-thirds as long as stigma, or at least continued by pigmented remnants | <i>biroi</i> group, p.538     |
- 
- |   |                             |
|---|-----------------------------|
| 3. T-III lateral margin not toothed or denticulate (Fig. 136 <i>g</i> ); male F-I sometimes less than 1.5 x as long as broad  | <i>faustus</i> group, p.539 |
| T-III lateral margin toothed sub-basally or denticulate submedially (Fig. 136 <i>d-f</i> ) ( <i>ambiguus</i> has a minute denticle, no TFC, and LID is quite narrow); F-I in both sexes at least twice as long as broad | 4                           |
- 
- |  |                               |
|--|-------------------------------|
| 4. T-III lateral margin with a sub-basal tooth (Fig. 136 <i>f</i> ); TFC apparently double and enclosing a broad, double trapezoid (Fig. 136 <i>p</i> )                          | <i>gbilianii</i> group, p.539 |
| T-III lateral margin with a submedial denticle (Fig. 136 <i>d</i> ) (see above note on <i>ambiguus</i> whose body length is no more than 2.5 mm); TFC single or sometimes absent | <i>reversus</i> group, p.539  |
- 

#### *Primeuchbroeus biroi* group

**Diagnosis.** Facial hollow deep, punctate and cross-ridged; F-I at least twice as long as broad; malar and subantennal spaces about 1 MOD; TFC present, sinuate, and sometimes double; subgenal area strongly defined; omaulus ending below in an acute curve; fore wing marginal cell nearly complete, discoidal cell anterodistal vein (Rs+M) weak; T-III edentate.



**Discussion.** The combination of a strong subgenal area and nearly complete fore wing marginal cell in this group is diagnostic. Three of the species have a roughly double TFC, defining a broad rectangle on the brow. Of these, *papuanus* has the propodeal angle convex posteriorly, whereas *relegatus* and *biroi* have it concave. One species (*tenuimediatus*) is known to us only from the original description.

***Primeuchroeus faustus* group** (Fig. 136*b, g-i, j, l, m*)

**Diagnosis.** Facial features various, subgenal area not defined; fore wing venation various; T-III lateral margin edentate and straight or sinuate (in doubtful cases where an angle may be perceived, omaulus with an acute curve below (see Figs and discussion under *reversus* group), distal margin edentate (except with medial tooth in *unidens*).

**Discussion.** With 12 species, this is the largest group in the genus. It also has the most variable species characteristics. For instance, the face may be relatively flat (*thorpi*), F-I may be long (3 times as long as broad in male *faustus*) or quite short (*mocsaryi*), TFC a strong downward crescent (*uqua*), or parenthesis-shaped and with backward branches (*borningi*), tarsi banded outwardly (*maculitarsis*), T-II without purplish maculation (*uqua*), T-III basolaterally convex (*kriechbaumeri*, *borningi*, *communi*), and T-III apex unidentate (*unidens*). Also, the fore wing veins of the marginal and discoidal cells vary from weak (*gressitti*) to strong (*borningi*).

***Primeuchroeus ghilianii* group** (Figs. 7*a, d* and 136*f, p*)

**Diagnosis.** Facial hollow deep, finely cross-ridged; F-I more than twice as long as broad; malar space slightly more than 1 MOD; subantennal space somewhat less than 1 MOD; TFC apparently double transversely, enclosing a broad, double trapezoid; subgenal area not defined; fore wing marginal cell nearly complete, angled before middle posteriorly, discoidal cell complete; T-III lateral margin with sub-basal tooth, distal margin pointed medially but not distinctly toothed.

**Discussion.** This group is the only one occurring in two faunal areas, the Oriental Region (*kansitakuanus*) and Afrotropical Region (*ghilianii*). The latter species is the only *Primeuchroeus* with a posteromedial denticle on the metanotum. The sub-basal tooth on T-III is distinctive for the group, as well as the strong double structure on the brow.

***Primeuchroeus reversus* group** (Figs. 135 and 136*c-e, k, n, o*)

**Diagnosis.** Facial hollow deep and cross-ridged; F-I at least twice as long as broad; malar space 1.5–2.5 MOD, subantennal space 1–2 MOD; TFC single and strong or apparently absent; subgenal area not defined; fore wing margin cell incomplete or nearly complete in large specimens, discoidal cell complete or incomplete (*ambiguus*, *ellipticus*); T-III lateral margin with a submedial denticle, which sometimes may be evanescent, distal margin edentate or rarely with a medial tooth.

**Discussion.** The submedial denticle on the lateral margin of T-III is diagnostic. This denticle may be evanescent or minute in *ambiguus* and *ellipticus* but it originates at the apex of an obtuse angle as seen in lateral view. Some specimens of these two species might be placed in the following group, which also has no subgenal area, except for a few characteristics. The two species in question have T-III angled laterally, F-I is at least twice as long as broad, LID is equal to the eye breadth, TFC is weak or absent, and the strong omaulus is continued posteriorly as a broadly curved carina.

***Primeuchroeus siamensis* group** (Fig. 136a)

**Diagnosis.** Facial hollow deep and crossridged; F-I 1.8–2.0 times as long as broad or rarely as broad as long; malar and subantennal spaces about 1 MOD (0.5 MOD in *siamensis*); TFC present and forming a strong down-curved crescent, or absent; subgenal area well defined; omaulus ending below in an acute curve; pronotum sublaterally with partial carina and usually markedly concave in dorsal view; fore wing marginal cell incomplete, Rs short and ending abruptly, discoidal cell with outer veins obsolescent (Fig. 136a); T-III edentate or rarely with three distal teeth.

**Discussion.** The combination of a well-defined subgenal area and abruptly short Rs are diagnostic. The eight included species differ considerably in structure, size, and markings. The tridentate T-III of *paradoxus* is unique in the genus, and the short, male F-I of the same species is unique in the group. All of these species have stained wings, but the wings are darkest in *alces* and *paradoxus*, and lightest in *malayensis*. Size ranges from 7.5 mm long in *alces* to 3.5 mm in *crassiceps*. TFC is nearly straight in *paradoxus*, wavy in *alces*, absent in *crassiceps* and *indiacus*, and crescentic in the remaining species. Tarsi and tibiae are straw coloured in *malayensis*, tarsi alone are straw coloured in *siamensis* and *crassiceps*, and tibiae and basitarsi are metallic green in the remaining species.

## Checklist of *Primeuchroeus*

---

*alces* (Linsenmaier). Australian: Papua New Guinea.

*alces* (Linsenmaier) 1968:52. (*Chrysis*). Holotype male; Papua New Guinea: Moss Forest (LEIDEN). (*siamensis* group).\*

*ambiguus* (Linsenmaier). Australian: e Australia.

*ambiguus* (Linsenmaier) 1982:329. (*Euchroeus*). Holotype male; Australia: South Australia: Rostrevor (LUZERN). (*reversus* group).

*biroi* (Mocsáry). Australian: Papua New Guinea, Irian, e Australia.

*biroi* (Mocsáry) 1899:483. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Papua New Guinea: Stephansort (BUDAPEST). (*biroi* group).\*

*caledonicus* (Mocsáry). Australian: New Caledonia.

*integer* (Montrousier) 1864:249. (*Chrysis*). Holotype; New Caledonia: Kanala (Mus. ?). Nec Fabricus 1787.

- caledonicus* (Mocsáry) 1887a:15. (*Chrysis*). Repl. name for *integra* Montrouzier. (*biroi* group).
- cardaleae* Bohart. Australian: Australia (widespread).
- cardaleae* Bohart 1988b:24. Holotype male; Australia: New South Wales, Fowler's Gap Res. Station (CANBERRA). (*faustus* group).\*
- communi* Bohart. Australian: Australia (W. Australia).
- communi* Bohart 1988b:25. Holotype male; Australia: W. Australia, 145 km ese Broome (CANBERRA). (*faustus* group).\*
- crassiceps* (Tsuneki). Oriental: Taiwan.
- crassiceps* (Tsuneki) 1970b:8. (*Chrysis*). Holotype female; Taiwan: Chiai Prov., Kuanhua (Mus. ?). (*siamensis* group).
- ellipticus* (Linsenmaier). Australian: s and e Australia.
- ellipticus* (Linsenmaier) 1982:330. (*Euchroeus*). Holotype female; Australia: South Australia, Rostrevor (LUZERN). (*reversus* group).
- faustus* (Smith). Australian: s and e Australia.
- faustus* (Smith) 1874b:456. (*Chrysis*). Lectotype female (desig. Bohart herein); Australia: Queensland (LONDON). (*faustus* group).\*
- australiacus* (Mocsáry) 1889:201. (*Chrysis*). Holotype male; Australia (BUDAPEST). N. synonymy.\*
- riessi* (Linsenmaier) 1982:325. (*Euchroeus*). Holotype female; Australia: South Australia, Rostrevor (LUZERN). N. synonymy.
- ghilianii* (Gribodo). Afrotropical: Nigeria and Uganda to South Africa.
- ghilianii* (Gribodo) 1879:335. (*Chrysis*). Lectotype female (desig. Bohart herein); South Africa: Natal Prov. ('Porto Natal') (LONDON). (*ghilianii* group).\*
- insueta* (Buysson) 1900:143. (*Chrysis*). Holotype female; South Africa: Natal Prov. (PARIS ?). N. synonymy.
- apiculatus* (Mocsáry) 1902b:540. (*Chrysogona*). Holotype male; Zimbabwe: Mashonaland (PRETORIA-TM). N. synonymy.\*
- biangulatus* (Mocsáry) 1902b:544. (*Chrysis*). Holotype female; South Africa: Cape Prov., Uitenhage (PRETORIA-TM). N. synonymy.\*
- cupratus* (Bischoff) 1910:451. (*Chrysogona*). Holotype female; Cameroon: Malimbo (BERLIN). N. synonymy.\*
- gressitti* Bohart. Australian: e Australia.
- gressitti* Bohart 1988b:25. Holotype male; Australia: Queensland, Brisbane (HONOLULU). (*faustus* group).\*
- borningi* Bohart. Australian: Australia (Queensland).
- borningi* Bohart 1988b:26. Holotype male; Australia: Queensland, 10 mi s Bowen (CANBERRA). (*faustus* group).\*

*incisicollis* (Linsenmaier). Australian: Papua New Guinea, Australia (Queensland).

*incisicollis* (Linsenmaier) 1982:324. (*Euchroeus*). Holotype female; Papua New Guinea: Mafulu (LONDON). (*siamensis* group).\*

*indiacus* Bohart. Oriental: India.

*indiacus* Bohart 1988b:26. Holotype female; India: Utter Pradesh, Dehra Dun (WASHINGTON). (*siamensis* group).\*

*kansitakuanus* (Tsuneki). Oriental: Taiwan, Viet Nam, Malaysia.

*kansitakuanus* (Tsuneki) 1970b:9. (*Chrysis*). Holotype female; Taiwan: Chiai Prov., Kansitaku (TSUKUBA). (*ghilianii* group).

*kriechbaumeri* (Gribodo). Australian: Australia (widespread).

*kriechbaumeri* (Gribodo) 1879:358. (*Chrysis*). Lectotype male (desig. Bohart herein); Australia: 'Nova Hol.' (COPENHAGEN). (*faustus* group).\*

*freygessneri* (Mocsáry) 1889:186. (*Chrysis*). Lectotype male (Bohart desig. herein); Australia (GENEVA). Nec Gribodo 1879.\*

*pentapromotus* (Linsenmaier) 1982:326. (*Euchroeus*). Holotype male; Australia: Victoria (LUZERN). Tentative n. synonymy.

*aptus* (Linsenmaier) 1982:327. (*Euchroeus*). Holotype male; Australia: Sydney (LUZERN). Tentative n. synonymy.

*victorianus* (Linsenmaier) 1982:327. (*Euchroeus*). Holotype female; Australia: Victoria, Gunbower (LONDON). N. synonymy.\*

*adelaidanus* (Linsenmaier) 1982:328. (*Euchroeus*). Holotype male; Australia: South Australia, Adelaide (LUZERN). N. synonymy.

*longigenis* (Linsenmaier). Australian: Australia (widespread).

*longigenis* (Linsenmaier) 1982:325. (*Euchroeus*). Holotype female; Australia: South Australia: Rostrevor (LUZERN). (*faustus* group).

*maculitarsis* (Linsenmaier). Australian: se Australia.

*maculitarsis* (Linsenmaier) 1982:327. (*Euchroeus*). Holotype male; Australia: South Australia: Rostrevor (LUZERN). (*faustus* group).

*malayensis* (Linsenmaier). Oriental: Malaysia, North Borneo, Irian.

*malayensis* (Linsenmaier) 1982:324. (*Euchroeus*). Holotype female; Malaysia: Kedah Peak (LONDON). (*siamensis* group).\*

*mocsaryi* (Bischoff). Australian: Australia (widespread).

*mocsaryi* (Bischoff) 1910:450. (*Chrysogona*). Holotype female; Australia: South Australia, Adelaide (BERLIN). (*faustus* group).\*

*yancheplus* (Linsenmaier) 1982:328. (*Euchroeus*). Holotype male; Australia: Western Australia, Yancheplus (LONDON). N. synonymy.\*

*papuanus* (Linsenmaier). Australian: Papua New Guinea, Solomon Isl., e Australia.

*papuanus* (Mocsáry) 1889:484. (*Chrysis*). Lectotype female (desig. Bohart herein); Papua



New Guinea (BUDAPEST). Nec Mocsáry 1899.\*

*papuanus* (Linsenmaier) 1959a:171. (*Chrysis*). Repl. name for *papuanus* Mocsáry 1899. (*biroi* group).

*dilutus* (Linsenmaier) 1982:329. (*Euchroeus papuanus* ssp.). Holotype female; Solomon Isl.: Malaita (LUZERN).

*paradoxus* (Linsenmaier). Australian: Papua New Guinea.

*paradoxus* (Linsenmaier) 1968:53. (*Chrysis*). Holotype female; Papua New Guinea: Bongu (LUZERN). (*siamensis* group).\*

*pauloradialis* (Linsenmaier). Australian: Papua New Guinea.

*pauloradialis* (Linsenmaier) 1982:325. (*Euchroeus*). Holotype female; Papua New Guinea: Orrori (LONDON). (*siamensis* group).\*

*relegatus* (Mocsáry). Australian: e Australia.

*relegatus* (Mocsáry) 1911b:469. (*Chrysis*). Lectotype male (desig. Bohart 1986b); Australia: New South Wales, Sydney (BUDAPEST). (*biroi* group).\*

*reversus* (Smith). Australian: Australia (widespread).

*reversus* (Smith) 1874b:457. (*Chrysis*). Lectotype female (desig. Bohart herein); Australia: Tasmania (LONDON). (*reversus* group).\*

*radoszkowskii* (Gribodo) 1879:335. (*Chrysis*). Lectotype female (desig. Bohart herein); Australia (COPENHAGEN). N. synonymy.\*

*adelaidensis* (Bischoff) 1910:453. (*Holochrysis*). Holotype female; Australia: South Australia, Adelaide (BERLIN). Nec Buysson 1893.\*

*duplex* (Bischoff) 1913:38. (*Chrysis*). Repl. name for *adelaidensis* Bischoff 1910.

*parvifacialis* (Linsenmaier) 1982:331. (*Euchroeus*). Holotype male; Australia: South Australia, Rostrevor (LUZERN). N. synonymy.

*cyaniposticus* (Linsenmaier) 1982:332. (*Euchroeus*). Holotype female; Australia: South Australia, Rostrevor (LUZERN). N. synonymy.

*rectiangulatus* (Linsenmaier) 1982:332. (*Euchroeus*). Holotype female; Australia: South Australia, Rostrevor (LUZERN). N. synonymy.

*siamensis* (Bischoff). Oriental: Philippines, Thailand, Laos, Viet Nam.

*siamensis* (Bischoff) 1910:451. (*Chrysogona*). Holotype female; Thailand: Muok-Lek (BERLIN). (*siamensis* group).\*

*deletitarsis* (Linsenmaier) 1982:324. (*Euchroeus siamensis* ssp.). Holotype female; Philippines: Mindanao (LUZERN).

*tenuimediatus* (Linsenmaier). Oriental: Burma.

*tenuimediatus* (Linsenmaier) 1968:53. (*Chrysis*). Holotype female; Burma: Kambaiti (STOCKHOLM). (*siamensis* group).

*thorpi* Bohart. Australian: e Australia.

*thorpi* Bohart 1988b:26. Holotype male; Australia: New South Wales, Carrathool (CANBERRA). (*faustus* group).\*

*truculentus* (Buysson). Australian: se Australia.

*truculentus* (Buysson) 1891:35. (*Chrysis*). Holotype male; Australia: Victoria, Melbourne (PARIS). (*reversus* group).\*

*unidens* (Mocsáry). Australian: se Australia.

*unidens* (Mocsáry) 1911b:471. (*Chrysis*). Holotype female; Australia: Victoria (BUDAPEST). (*faustus* group).\*

*uqua* Bohart. Australian: e Australia.

*uqua* Bohart 1988b:27. Holotype male; Australia: Queensland, Brisbane (BRISBANE). (*faustus* group).\*

*viridifrons* (Smith). Australian: se Australia.

*viridifrons* (Smith) 1874b:457. (*Chrysis*). Lectotype female (desig. Bohart herein); Australia: Tasmania (LONDON). (*reversus* group).\*

*turneri* (Mocsáry) 1914:22. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Australia: Tasmania, Eaglehawk Neck (BUDAPEST). N. synonymy.\*

### *Pseudospinolia* Linsenmaier (Figs 2d, e, 137, and 138)

*Pseudospinolia* Linsenmaier 1951:65. Type: *Chrysis uniformis* Dahlbom 1854:149. Orig. desig.

*Neospinolia* Linsenmaier 1968:39. Type: *Chrysis tertrini* Buysson 1898b:549. Orig. desig. and monobasic

### Generic diagnosis

Face with discrete medial impunctate stripe or zone of cross ridging, dense appressed silver pubescence laterally at least in males; TFC present (Fig. 138a, b); malar space 0.5–1.0 MOD long; mandibles tapering apically with shallow subapical notch but no teeth; tongue long; F-I length 2.0–3.5 times breadth; pronotal anterior declivity with four pits, lateral fovea deep, sharp edged, and subdivided by strong ridge; mesopleuron with episternal sulcus indicated at least as a shallow depression, scrobal sulcus irregular and often faintly indicated, subtended by irregularly V-shaped enclosure formed by verticulus and omaulus; fore wing Rs long but bending slightly away from costal margin, leaving marginal cell broadly open (Fig. 137); T-III with large prepit swelling, pits considerably larger than adjacent punctures, apical rim smooth without crenulations or teeth (Fig. 138f, g); female T-V with some apicolateral ridges; S-V unmodified; T-VI with apicomedial tooth. Male terminalia (Fig. 138c–e).

### Hosts

Members of this genus apparently parasitize Eumenidae. *Odynerus spinipes* (Linnaeus) and *O. reniformis* (Gmelin) have been reported as hosts of *neglecta*, and *Paravespa grandis* (Morawitz) the host of *humboldti* (Linsenmaier 1959a).



Fig. 137. *Pseudospinolia humboldti*, female.

## Distribution

The majority of *Pseudospinolia* occur in the Palearctic Region, particularly in the southern USSR and in Algeria. One species, *tumida*, appears to be restricted to Ethiopia. *Pseudospinolia neglectus* has a Holarctic distribution, occurring in both Europe, northern China, Mongolia, and northern North America. In addition, there is one species in southern Africa, *ardoris*, and one in Chile, *tertrini*.

## Discussion

The question of whether *Pseudospinolia* is a distinct group has had a variety of answers since it was first treated as a subgenus of *Euchroeus* by Linsenmaier (1959a). Kimsey (1983) synonymized *Pseudospinolia* under *Spinolia* based on a relatively small number of species. We have re-evaluated these groups and have concluded that *Pseudospinolia* is indeed a valid genus, the primitive sister group of *Spinolia* + *Brugmoia*.

These three genera all have a broadly open marginal cell, a well-developed scrobal sulcus, slender and unidentate or edentate mandibles, and a long clypeus. Diagnostic features for *Pseudospinolia* are: T-III apically edentate and smooth, mesopleuron with broad, irregularly V-shaped enclosure below the scrobal sulcus, pronotal side with depression deep and subdivided by a carina, and face with a TFC.

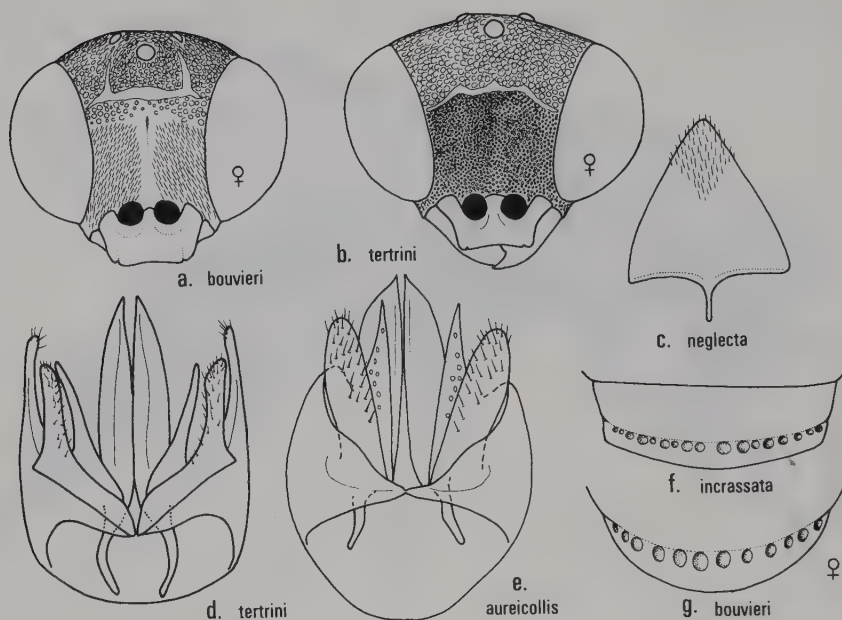


Fig. 138. *Pseudospinolia*. (a), (b) face; (c) S- VIII; (d), (e) genital capsule, ventral; and (f), (g) T-III, dorsal. Male, except as indicated.

Species distinctions are based to a large extent on colour and facial dimensions. Palaearctic species are generally bicoloured with the head and thorax blue, purple, or green and the abdomen brassy green to coppery red. There are some variations in this basic pattern. In *uniformis* the pronotum, scutellum, and metanotum are concolorous with the terga. T-III in *humboldti* and *incrassata* is dark blue or purple. Finally, *aureicollis* has only the pronotum concolorous with the terga. In contrast the southern African species *ardoris*, is entirely coppery, and *tertrini* from Chile is blue green.

The shape of T-III tends to be sexually dimorphic in *Pseudospinolia*. In males T-III is subtruncate with the apicomedial margin broadly curved. Females have T-III drawn out apicomediaally so that the margin is sharply curved.

### Checklist of *Pseudospinolia*

*ardoris* Kimsey. Afrotropical: South Africa, Basutoland.

*ardens* (Mocsáry) 1902b:543. (*Chrysis*). Holotype female; South Africa: Cape Prov., Willowmore (PRETORIA-TM). Nec Coquebert 1801.\*

*ardoris* Kimsey. N. repl. name for *ardens* Mocsáry 1902b.



*aureicollis* (Abeille). Palaearctic: sw Europe, North Africa.

*aureicollis* (Abeille) 1879:82. (*Chrysis*). Holotype male; Spain (PARIS).\*

*bouvieri* (Buysson). Palaearctic: Algeria.

*bouvieri* (Buysson) 1898b:549. (*Chrysis*). Holotype female; Algeria (PARIS).\*

*eos* (Trautmann) 1923:243. (*Pseudochrysis*). Holotype female; Algeria: Oran (BERLIN).\*

*chobauti* (Buysson). Palaearctic: Algeria.

*chobauti* (Buysson) (in André) 1896:723. (*Chrysis*). Holotype female; Algeria: Teniet-El-Haad (PARIS).\*

*gratiosa* (Mocsáry). Palaearctic: Algeria.

*gratiosa* (Mocsáry) 1889:225. (*Chrysis*). Holotype female; Algeria (BUDAPEST).\*

*humboldti* (Dahlbom). Palaearctic: Eurasia.

*humboldti* (Dahlbom) 1845:6. (*Chrysis*). Holotype male; Greece: Rhodes Isl. (STOCKHOLM).

*cyanura* (Dahlbom) 1854:109. (*Chrysis*). Holotype female; 'Russia meridionalis' (LUND).

*fedtschenkoi* (Radoszkowski) 1877:12. (*Chrysis*). Uzbek SSR: Maracand (MOSCOW).\*

*minor* (Mocsáry) 1889:223. (*Chrysis humboldti* var.). Syntype male, female; Turkmen SSR: Mary ('Merv') (KRAKOW ?).

*minuta* (Mocsáry) 1889:224. (*Chrysis humboldti* var.). Holotype male; Russian SFSR: Sarepta (VIENNA).\*

*libanesa* (Linsenmaier) 1959a:67. (*Euchroeus humboldti* ssp.). Holotype female; Lebanon (LUZERN).

*jerichoensis* (Linsenmaier) 1959a:67. (*Euchroeus humboldti* ssp.). Holotype male; Jordan: Jericho (LUZERN).

*sculpturatissima* (Linsenmaier) 1959a:67. (*Euchroeus humboldti* ssp.). Holotype female; Cyprus (LUZERN).

*incrassata* (Spinola). Palaearctic: s and central Europe, North Africa, Middle East, s USSR.

*incrassata* (Spinola) 1838:454. (*Chrysis*). Holotype female; Egypt (TURIN).\*

*fahringeri* (Trautmann) 1926a:7. (*Pseudochrysis incrassata* var.). Holotype female; Hungary: Leithagebirge (BERLIN).\*

*viridis* (Trautmann) 1926a:7. (*Pseudochrysis incrassata* var.). Holotype male; Greece: Attica (BERLIN).\*

*asiatica* (Trautmann) 1928:30. (*Pseudochrysis incrassata* var.). Lectotype male (desig. Kimsey 1986c); Uzbek SSR: Samarkand (BERLIN).\*

*ignithorax* (Balthasar) 1953:158. (*Pseudochrysis incrassata* var.). Holotype male; Jordan: Khan Hadrur (BERLIN). N. synonymy.\*

*elisabethae* (Semenov) 1967:182. (*Spinolia*). Holotype female; Kazakh SSR: Baigakum (LENINGRAD). N. synonymy.\*

*marqueti* (Buysson). Palaearctic: s Europe, Turkey, Middle East.

*marqueti* (Buysson) 1887b:180. (*Chrysis*). Holotype male; Greece: Parnassus (PARIS).\*

*kobli* (Mocsáry) 1889:275. (*Chrysis*). Holotype female; 'Asia numeure: Brussa' (PARIS).\*

- schmiedeknechti* (Trautmann) 1922:221. (*Pseudochrysis marqueti* var.). Syntype males; 'Palestine' (HAMBURG, destroyed, BERLIN). N. synonymy.\*
- chamaeleon* Semenov 1967:181. Holotype female; Iran: Sargad, Kulku (LENINGRAD). N. synonymy.\*
- neglecta* (Shuckard). Holarctic: Eurasia, USA and Canada west to Colorado and Ontario.
- neglecta* (Shuckard) 1836:169. (*Chrysis*). Lectotype female (desig. Morgan 1984); England ('Angliam') (LONDON).\*
- integrella* (Dahlbom) 1854:133. (*Chrysis*). Syntype male, female; Europe (LUND, VIENNA).
- thuringiaca* (Schmiedeknecht) 1880b:193. (*Chrysis*). Holotype male; Germany (BERLIN).\*
- kuthyi* (Mocsáry) 1889:212. (*Chrysis*). Holotype female; Hungary (BUDAPEST).\*
- semicuprea* (Viereck) 1903:70. (*Olochrysis*). Holotype female; USA: New Mexico, Beulah (PHILADELPHIA).\*
- neglectoides* (Linsenmaier). Palaearctic: Syria, Turkey.
- neglectoides* (Linsenmaier) 1959a:66. (*Euchroeus*). Holotype female; Syria: Hòms (LUZERN).
- tertrini* (Buysson). Neotropical: Chile.
- tertrini* (Buysson) 1898b:549. (*Chrysis*). Holotype female; Chile (PARIS).\*
- transversa* (Dahlbom). Palaearctic: Greece, Turkey.
- transversa* (Dahlbom) 1854:113. (*Chrysis*). Holotype; 'Asia Minor' (LUND ?).
- tricoloricornis* (Linsenmaier). Palaearctic: Turkey.
- tricoloricornis* (Linsenmaier) 1968:130. (*Euchroeus*). Holotype male; Turkey: Urfa (LUZERN).
- tumida* (Mocsáry). Palaearctic: Ethiopia.
- tumida* (Mocsáry) 1911b:464. (*Chrysis*). Holotype male; Ethiopia: Eritrea (BUDAPEST).\*
- uniformis* (Dahlbom). Palaearctic: s Europe, North Africa, s USSR, Syria.
- fasciata* (Spinola) 1805:14. (*Chrysis*). Holotype male; Italy: Liguria (TURIN ?). Nec Olivier 1790.
- uniformis* (Dahlbom) 1854:149. (*Chrysis*). Holotype female; 'Asia Minor' (LUND ?).

### *Spinolia* Dahlbom (Figs 139 and 140)

- Spinolia* Dahlbom 1854:363. Type: *Spinolia magnifica* Dahlbom 1854:363 (= *Chrysis lamprosoma* Förster 1853:311). Monobasic.
- Gonochrysis* Lichtenstein 1876:27. Type: *Chrysis albipennis* Dahlbom 1854:175 (= *Chrysis unicolor* Dahlbom 1831:32). Desig. Ashmead 1902:227.
- Polyodontus* Radoszkowski 1877:27. Type: *Polyodontus stchurovskyi* Radoszkowski 1877:25. Monobasic.
- Achrysis* Semenov 1892b:486. Type: *Chrysis unicolor* Dahlbom 1831:32. Orig. desig. and monobasic.

*Euchroeides* Nurse 1904:23. Type: *Euchroeides oblatatus* Nurse 1904:23. Monobasic.

*Spinolaia* Schulz 1906:154. Invalid emendation of *Spinolia* Dahlbom 1854:263.

*Prospinolia* Linsenmaier 1968:40. Type: *Chrysis theresiae* Buysson 1900:135. Orig. desig.

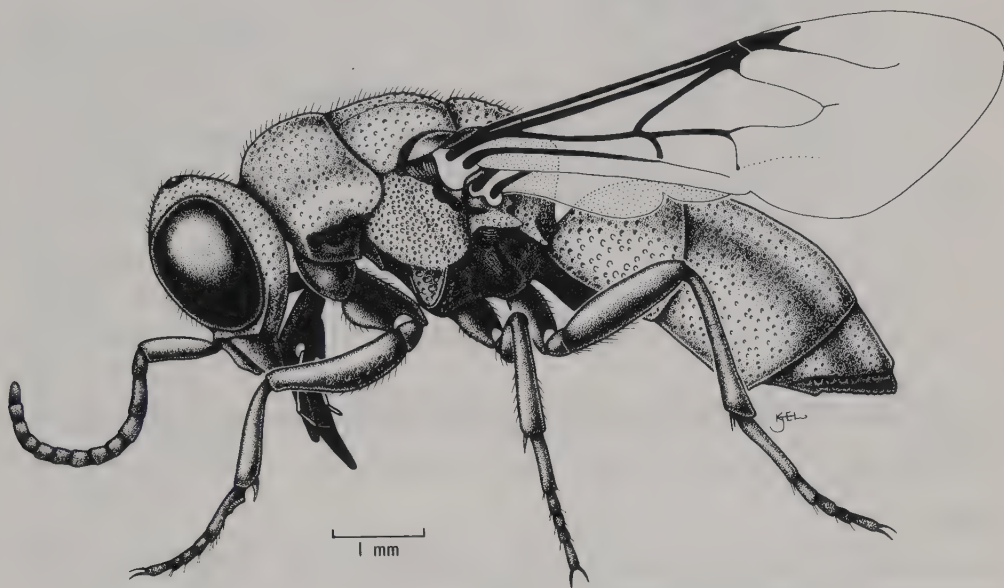


Fig. 139. *Spinolia insignis*, male.

### Generic diagnosis

Face covered with coarse contiguous punctation, without discrete polished medial stripe or medial zone of cross-ridging, without silver pubescence and without frontal carina (Fig. 140a); male (and sometimes female) frons with two large ovoid, flattened or somewhat concave striate areas; malar space short, less than 1 MOD; mandible with single broad subapical tooth; tongue long; F-I length between two and three times breadth; pronotal anterior declivity with four pits, lateral depression shallow and obsolescent; mesopleuron without episternal sulcus, scrobal sulcus large and deep, subtended by large projecting U-shaped carina; fore wing Rs long but bending slightly away from costal margin, leaving marginal cell broadly open; T-III with slight prepit swelling, pits small, subequal to punctures in size (Fig. 140b, e, f); female T-V with two apical lobes and several coarse apicolateral ridges; S-V with two large apical hooks or lobes; T-VI with sharp medial tooth. Male terminalia (Fig. 140c, d).

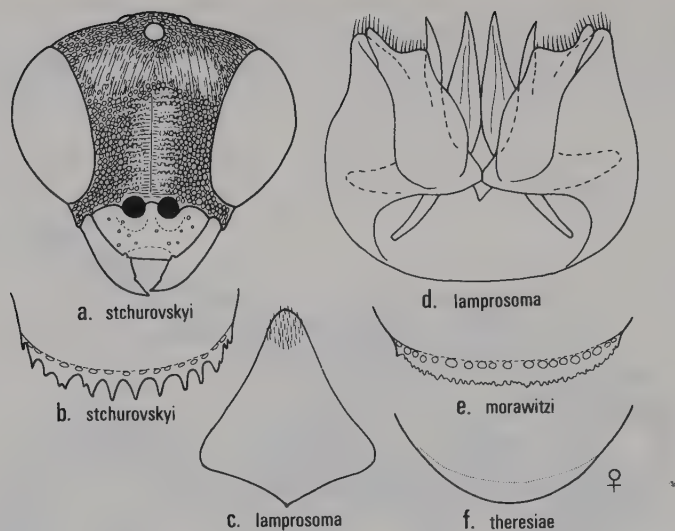


Fig. 140. *Spinolia*. (a) face; (b), (e), (f) T-III, dorsal; (c) S-VIII; and (d) genital capsule, ventral. Male, except as indicated.

## Hosts

*Hemipterochilus bembeciformis* (Morawitz) (Eumenidae) has been reported as the host of *dallatorreana* (= *insignis*) (Linsenmaier 1959a).

## Distribution

*Spinolia* is distributed throughout Europe, Africa north of the Sahara, and in the Middle East. However, the centre of diversity is in the southern USSR.

## Discussion

The most distinctive features of *Spinolia* are the U-shaped projection on the lower mesopleuron, finely denticulate to dentate margin of T-III, dentate ovipositor segments, and the frons with two large round, flattened and usually striate areas; particularly in males. These characteristics immediately separate *Spinolia* from its closest relatives, *Brugmoia* and *Pseudospinolia*. Most *Spinolia* have the apical margin of T-III finely denticulate or crenulate, but *stchurovskyi* has multiple, large, irregular teeth.

As in *Pseudospinolia*, the basic colour pattern is a dark blue to purple, as exemplified by *algira*. However, bright markings on the thoracic dorsum are common, and useful for distinguishing species. In *dournovi* the vertex and the entire dorsum of the thorax are coppery. In *insignis* the pronotum, scutum, and scutellum are coppery except for



the area between the notauli. A similar pattern occurs in *lamprosoma*, although the markings are bright green and the scutum is dark except for green bands along the notauli. *Spinolia stchurovskyi* is quite differently coloured, the body is basically magenta or reddish purple, with bright green tints on the thorax. This genus was reviewed for Europe by Linsenmaier (1959a).

## Checklist of *Spinolia*

---

*algira* (Mocsáry). Palaearctic: North Africa.

*algira* (Mocsáry) 1889:605. (*Chrysis*). Holotype female; Algeria (BUDAPEST).\*

*vogti* (Trautmann) 1926a:11. (*Pseudochrysis*). Holotype female; Libya: Cyrenaica, Banghazi ('Bengasi') (BERLIN).\*

*chalcites* (Mocsáry). Palaearctic: s USSR.

*chalcites* (Mocsáry) 1890:55. (*Chrysis*). Holotype female; 'central Russia' (BUDAPEST).\*

*mlada* Semenov 1967:181. Holotype male; Turkmen SSR.: Bairam-Ali (LENINGRAD). N. synonymy.\*

*nymphae* Semenov 1967:181. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD). N. synonymy.\*

*shestakovi* Semenov 1967:181. Holotype female; Kazakh SSR: Tartugai (LENINGRAD). N. synonymy.\*

*dournovi* (Radoszkowski). Palaearctic: se Europe, North Africa, Middle East, s USSR.

*dournovi* (Radoszkowski) 1866:303. (*Chrysis*). Holotype female; USSR: 'Caucasus' (KRAKOW ?).

*phoenix* Semenov 1967:182. Holotype female; Kazakh SSR: Mal. Barsuki, near Aral Sea (LENINGRAD). N. synonymy.\*

*hibera* (Linsenmaier). Palaearctic: Spain.

*hibera* (Linsenmaier) 1987:143. (*Euchroeus*). Holotype female; Spain: Madrid (LUZERN).

*insignis* (Lucas). Palaearctic: s Europe, North Africa, s USSR.

*insignis* (Lucas) 1849:307. (*Chrysis*). Lectotype female (desig. Kimsey 1986c); Algeria: Bougie (PARIS).\*

*dallatorreana* (Mocsáry) 1896:2. (*Chrysis*). Lectotype female (desig. Kimsey 1986c); Hungary: Pechzel (PARIS).\*

*bicarinata* (Linsenmaier) 1959a:69. (*Euchroeus dallatorreana* ssp.). Holotype female; France: Nemours (LUZERN).

*pulawskii* (Linsenmaier) 1968:41. (*Euchroeus*). Holotype female; Turkmen SSR: Tedzhen (LUZERN). N. synonymy.\*

*taurusiaca* (Linsenmaier) 1987:144. (*dallatorreanus* ssp.). Holotype female; Turkey: Konya (LUZERN).

*kashmirae* Kimsey. Palaearctic: India.

*dusmeti* (Trautmann) 1921:35. (*Chrysis*). Holotype female; India: Kashmir, Grenze (BERLIN).

Nec Mercet 1904a.\*

*kashmirae* Kimsey. N. repl. name for *dusmeti* Trautmann 1921.

*lamprosoma* (Förster). Palaearctic: s Europe, Turkey, s USSR.

*lamprosoma* (Förster) 1853:311. (*Chrysis*). Holotype female; Turkey (BERLIN).\*

*magnifica* (Dahlbom) 1854:363. (*Chrysis*). Holotype male; Turkey: Constantinople (TURIN ?).

*segusiana* (Giraud) 1863:23. (*Chrysis*). Syntype male, female; Italy: Suse, Pedemontano (GENOA).\*

*pulchra* (Radoszkowski) 1880:143. (*Chrysis*). Holotype male; USSR: 'Caucasus' (KRAKOW ?).

*modica* (Linsenmaier). Palaearctic: Morocco.

*modica* (Linsenmaier) 1987:143. (*Euchroeus*). Holotype female; Morocco: Agadir (LUZERN).

*morawitzi* (Mocsáry). Palaearctic: Turkey, Middle East, Algeria.

*morawitzi* (Mocsáry) 1889:607. (*Chrysis*). Holotype male; Turkmen SSR: Krasnowods (BUDAPEST).\*

*rogenhoferi* (Mocsáry). Palaearctic: Greece, Turkey, Algeria.

*rogenhoferi* (Mocsáry) 1889:604. (*Chrysis*). Holotype female; Turkey: Attica (BUDAPEST).\*

*rugosa* (Buysson). Palaearctic: Egypt.

*rugosa* (Buysson) 1900:132. (*Chrysis*). Holotype male; Egypt: Siala (PARIS).\*

*schmidtii* (Linsenmaier). Palaearctic: Greece.

*schmidtii* (Linsenmaier) 1987:143. (*Euchroeus*). Holotype female; Greece: Stimpalia (LUZERN).

*stchurovskyi* (Radoszkowski). Palaearctic: s USSR, Pakistan.

*stchurovskyi* (Radoszkowski) 1877:25. (*Polyodontus*). Holotype female; USSR: 'Turkestan': (MOSCOW).\*

*sphinx* (Semenov) 1902:168. (*Pseudochrysis*). Lectotype female (desig. Kimsey 1986c); USSR: Amu-Daria (LENINGRAD). N. synonymy.\*

*oblata* (Nurse) 1904:23. (*Euchrooides*). Lectotype male (desig. Kimsey 1986c); Pakistan: Quetta (LONDON). N. synonymy.\*

*theresia* (Buysson). Palaearctic: Middle East.

*theresia* (Buysson) 1900:135. (*Chrysis*). Holotype female; Jordan: Jericho (PARIS).\*

*herodiana* Morice 1909:467. Holotype female; Jordan: Jericho (OXFORD).\*

*unicolor* (Dahlbom). Palaearctic: Europe, Pakistan, Mongolia.

*unicolor* (Dahlbom) 1831:32. (*Chrysis*). Holotype male; Switzerland (LUND).\*

*lazulina* (Förster) 1853:315. (*Chrysis*). Holotype female; Germany (BUDAPEST).

*albipennis* (Dahlbom) 1854:175. (*Chrysis*). Holotype female; Hungary (LUND).\*

*bedychroides* (Bingham) 1903:440. (*Chrysis*). Holotype female; Pakistan: Beluchistan, Peshin

(LONDON).\*

*alconost* Semenov 1967:180. Holotype female; Turkmen SSR: Imam-Baba (LENINGRAD).  
N. synonymy.\*

---

*Spintharina* Semenov (Figs 141 and 142)

*Spintharina* Semenov 1892b:485. Type: *Chrysis vagans* Radoszkowski 1877:11. Orig. desig.

*Acanthospintharis* Balthasar 1953:155. Type: *Spintharis houskai* Balthasar 1953:155. Orig. desig.

*Spintharichrysis* Linsenmaier 1951:56. Type: *Chrysis versicolor* Spinola 1808:241. Orig. desig.

*Plexichrysis* Balthasar 1957:146. Type: *Plexichrysis amoena* Balthasar 1957:147 (= *Chrysis tenellula* Semenov 1910:218). Orig. desig. and monobasic. N. synonymy.

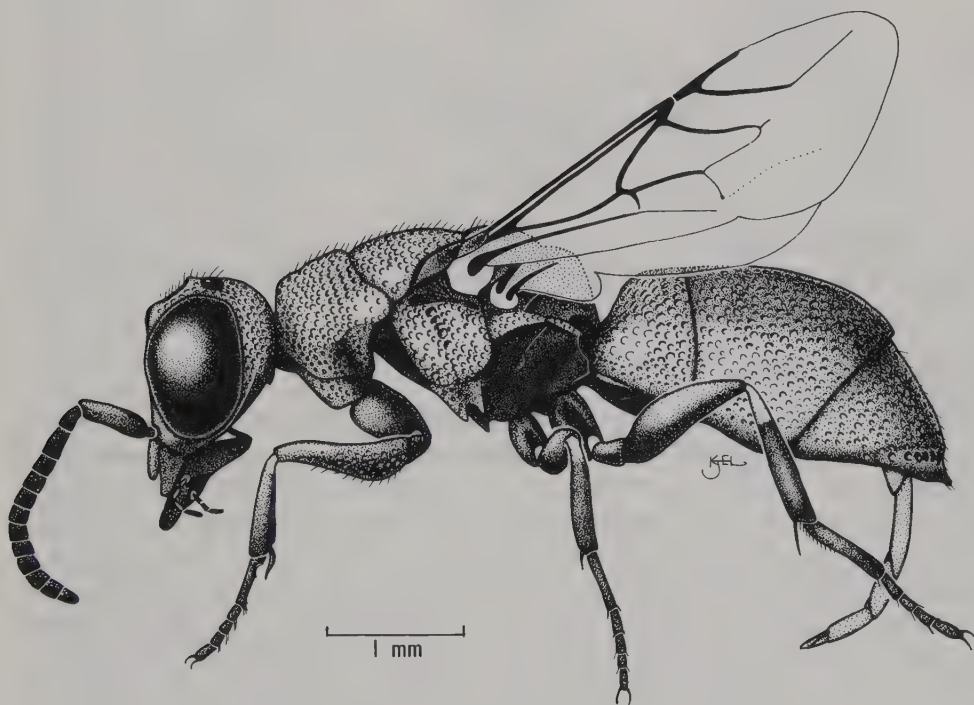


Fig. 141. *Spintharina bispinosa*, female.

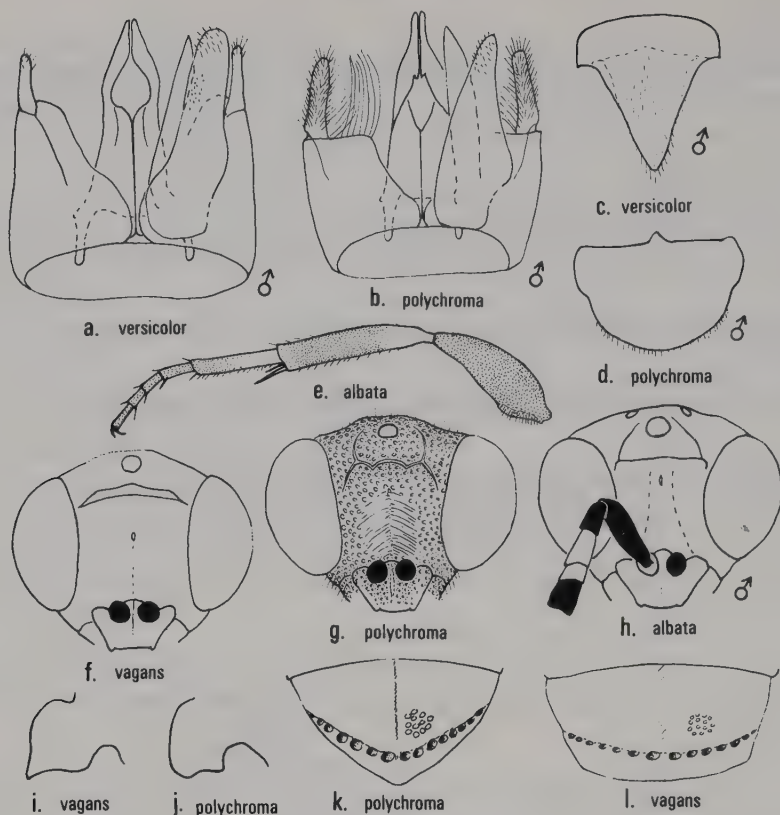


Fig. 142. *Spintharina*. (a), (b) genital capsule, ventral, volsella omitted from left side; (c), (d) S-VIII; (e) hind leg, outer surface; (f)–(h) face; (i), (j) propodeal angle; and (k), (l) T-III, dorsal. Female, except as indicated.

### Generic diagnosis

Mostly small species (5–7 mm long); some species marked with white on F-I–II (males) (Fig. 142*b*), tibiae, and T-III distal rim (both sexes) F-I length versus breadth 1–2 times (males) or 1.0–2.9 times (females); F-II in most males and some females shorter than F-III (Fig. 142*b*); scapal basin concave, usually microridged medially (Fig. 142*g*); TFC nearly always sharp, broadly M-shaped, an inverted U, or a parenthesis; mid ocellar area usually well defined; mid ocellus not lidded except when mid ocellar area is complete; malar space 0.9–3.0 MOD; subantennal space 1–2 MOD; distance between eye and genal carina 0.2 MOD; subgenal area at most partly defined anteriorly; pronotum with medial depression weak, lateral depression large and shallow; fore wing discoidal cell distinct, marginal cell long triangular (Fig. 141); metanotum convex and simple; mesopleuron usually with pair of teeth below distinct scrobal sulcus, sometimes multidentate; propodeal angle more or less truncate or apically emarginate (Fig. 142*i, j*); T-I broad; T-II medial length 1.5–2.0 times lateral length,



medial carina usually present; T-III sometimes with medial carina (Fig. 142*k*), pit row nearly always distinct, apical rim evenly rounded or bluntly pointed (female) (Fig. 142*l*), weakly emarginate medially, convex or roundly pointed (male), basolaterally usually with convexity, angle, or prominent hook; S-II spots various. Male terminalia (Fig. 142*a-d*): S-VIII triangular; gonocoxa with slender apical projection (Fig. 142*b*).

## Hosts

Presumably Masaridae. Linsenmaier (1959*a*) listed *Celonites* sp. as the host of *versicolor*. Gess (note on specimen) reported *bispinosa* in the nesting site of *Jugurtia confusa* Richards.

## Distribution.

Most of the 26 species listed inhabit arid zones. The Palaearctic Region has 14 species of which 10 are in the Middle East or in North Africa. The Afrotropical Region has 12 species.

## Discussion.

The truncate or apically emarginate propodeal projection distinguishes *Spintharina* from other Chrysidini except *Spintharosoma*. *Spintharosoma* also has white leg bands, white distal rim of T-III, a weakly biangulate mesopleuron, and coarsely punctate terga; all features of some species of *Spintharina*. However, there are several important differences. In *Spintharina* the fore wing marginal cell is triangular (Fig. 141), the pronotal declivity has two pits instead of three, the subgenal area is partly defined, the genal carina is closer to the eye, the malar space is distinct, T-III is not notched apicomediaally, T-II is not unusually short laterally, and male F-I is not ring-like.

The posteriorly emarginate propodeal angle of *Spintharina* (Fig. 142*i,j*) distinguishes it from species placed in *Spintharis*, *Chrysis*, and *Dichrysis*. Zimmermann (1950, 1959) discussed these relationships and was the first to recognize *Spintharina* and *Spintharosoma* as distinct genera. Unfortunately, Linsenmaier (1959*a*, 1968) did not agree with Zimmermann in this respect, and confused *Spintharina* with several species of *Chrysis*.

Bohart (1987*b*) described six new species and presented a key to the genus, with indication of species groups. Five of these can be distinguished: (1) *cyanophris* group, with hind tibia plainly white banded on the outer side; (2) *vagans* group, with T-III almost completely rimmed by a pale translucent band; (3) *versicolor* group with none of the above and an angular or lobular basolateral projection on T-III; (4) *innesi* group, with none of the above and malar space 1.7–2.5 MOD; and (5) *pleuralis* group with none of the above and malar space about 1 MOD (0.9–1.2).

Balthasar (1953) described a new subgenus of *Spintharis*, *Acanthospintharis*, with *houskai* as the generotype. We place *houskai* as a member of the *vagans* group of *Spintharina*.

*Spintharichrysis* Linsenmaier (1951) and *Plexichrysis* Balthasar (1953) represent species groups of *Spintharina* at most. We have not examined *bleuthgeni*, *integerrima*, and *sulcianalis*, but they are supposedly related to *versicolor* according to Mocsáry (1889) and Linsenmaier (1959a, 1968).

## Checklist of *Spintharina*

---

*agadirensis* (Buysson). Palaearctic: Morocco.

*agadirensis* (Buysson) 1911:408. (*Chrysis*). Holotype male; Morocco: Agadir (PARIS). (*versicolor* group).\*

*albata* (Edney). Afrotropical: South Africa, Namibia.

*albata* (Edney) 1952:424. (*Chrysis*). Holotype male; South Africa: Cape Prov., Matjesfontein (LONDON). (*cyanophris* group).\*

*apiculata* (Mocsáry). Afrotropical: South Africa.

*apiculata* (Mocsáry) 1908b:510. (*Chrysis*). Holotype female; South Africa: Willowmore (PRETORIA-TM). (*cyanophris* group).\*

*appendiculata* (Buysson). Palaearctic: Middle East.

*appendiculata* (Buysson) 1900:139. (*Chrysis*). Holotype female; Jordan: Jericho (OXFORD). (*innesi* group).\*

*arnoldi* (Brauns). Afrotropical: Zimbabwe, South Africa, Namibia.

*arnoldi* (Brauns) 1928:383. (*Spintharis*). Holotype male; Zimbabwe: Bulawayo (PRETORIA-TM). (*cyanophris* group).\*

*kaokoana* (Edney) 1952:425. (*Chrysis albata* var.). Lectotype male (desig. Bohart herein); Namibia: Kaokootavi (CAPE TOWN). N. synonymy.\*

*bispinosa* (Mocsáry). Afrotropical: South Africa, Namibia.

*bispinosa* (Mocsáry) 1902b:539. (*Spintharis*). Holotype female; South Africa: Cape Prov., Willowmore (PRETORIA-TM). (*cyanophris* group).\*

*bleuthgeni* (Linsenmaier). Palaearctic: Middle East.

*bleuthgeni* (Linsenmaier) 1959a:102. (*Chrysis*). Holotype male; Jordan: Jericho (LUZERN). (*versicolor* group ?).

*corniger* (Zimmermann). Palaearctic: Egypt.

*corniger* (Zimmermann) 1950:316. (*Spintharis*). Lectotype male (desig. Kimsey 1986c); Egypt: Gebel Elba (VIENNA). (*innesi* group).\*

*cyanophris* (Mocsáry). Afrotropical: South Africa.

*cyanophris* (Mocsáry) 1890:54. (*Chrysis*). Holotype female; South Africa: Cape Prov., Cape of Good Hope (CAPE TOWN). (*cyanophris* group).\*

*dubai* Bohart. Palaearctic: Middle East.

*dubai* Bohart 1987b:96. Holotype male; United Arab Emirates: Dubai, Nakhali (DAVIS). (*vagans* group).\*

*edneyi* Bohart. Afrotropical: South Africa.

*rubescens* (Edney) 1952:446. (*Chrysis*). Holotype male; South Africa: Cape Prov., Springbok (CAPE TOWN). Nec Radoszkowski 1880.\*

*edneyi* Bohart 1987b:98. Repl. name for *rubescens* Edney 1952. (*innesi* group).

*bouskai* (Balthasar). Palaearctic: Middle East.

*bouskai* (Balthasar) 1953:155. (*Spintharis*). Holotype male; Israel: Jerusalem (PRAGUE).

*innesi* (Buysson). Palaearctic: North Africa, Middle East.

*innesi* (Buysson) (In André) 1894:391. (*Chrysis*). Holotype male; Egypt: Cairo (PARIS). (*innesi* group).\*

*margareta* (Trautmann) 1926a:9. (*Dichrysis versicolor* var.). Lectotype male (desig. Bohart herein); Algeria (BERLIN). N. synonymy. Nec Trautmann 1926a.\*

*integerrima* (Klug). Palaearctic: Middle East.

*integerrima* (Klug) 1845:Table 45, Fig.14. (*Chrysis*). Type ?; 'Arabia' (BERLIN). (*versicolor* group).

*invreai* Zimmermann. Palaearctic: Ethiopia, Somalia.

*invreai* Zimmermann 1952:360. Lectotype female (desig. Kimsey 1986c); Ethiopia: Sagan, Gondaraba (VIENNA). (*vagans* group).\*

*kimseyae* Bohart. Afrotropical: South Africa.

*kimseyae* Bohart 1987b:99. Holotype female; South Africa: Cape Prov., Worcester (DAVIS). (*pleuralis* group).\*

*pleuralis* (Mocsáry). Afrotropical: South Africa.

*pleuralis* (Mocsáry) 1904:405. (*Chrysis*). Lectotype female (desig. Bohart 1986b); South Africa: Willowmore (BUDAPEST). (*pleuralis* group).\*

*vestalis* (Mocsáry) 1908b:511. (*Chrysis*). Holotype female; South Africa: Willowmore (PRETORIA-TM).\*

*viridior* (Edney) 1952:416. (*Chrysis*). Lectotype female (desig. Kimsey herein); South Africa: Worcester (LONDON). N. synonymy.\*

*poecilopus* (Mocsáry). Afrotropical: South Africa.

*poecilopus* (Mocsáry) 1911b:472. (*Chrysis*). Lectotype female (desig. Bohart herein); South Africa: Orange Free State, Smithfield (CAPE TOWN). (*cyanophris* group).\*

*polychroma* (Mocsáry). Afrotropical: South Africa.

*polychroma* (Mocsáry) 1908b:509. (*Chrysis*). Lectotype female (desig. Bohart 1986b); South Africa: Willowmore (BUDAPEST). (*pleuralis* group).\*

*postpunctata* Bohart. Afrotropical: South Africa.

*postpunctata* Bohart 1987b:98. Holotype female; South Africa: Jackals Water ('Bushmanland') (PRETORIA- NIC). (*pleuralis* group).\*

*senegalae* Bohart. Afrotropical: Senegal.

*senegalae* Bohart 1987b:97. Holotype female; Senegal: Savoigne (DAVIS). (*vagans* group).\*

*sugdeni* Bohart. Palaearctic: Middle East.

*sugdeni* Bohart 1987b:97. Holotype male; United Arab Emirates: Dubai, Zabeel (DAVIS). (*versicolor* group).\*

*sulcianalis* (Linsenmaier). Palaearctic: Greece, Turkey.

*sulcianalis* (Linsenmaier) 1968:132. (*Chrysis obscuriventris* ssp.). Holotype female; Turkey (LUZERN). Generic assignment doubtful.

*obscuriventris* (Linsenmaier) 1968:57. (*Chrysis*). Holotype female; Greece (LUZERN). Nec Mocsáry 1914.

*tenellula* (Semenov). Palaearctic: s USSR, Afghanistan.

*tenellula* (Semenov) 1910:218. (*Chrysis*). Holotype female; Uzbek SSR: Balamurun (LENINGRAD).\*

*amoena* (Balthasar) 1957:147. (*Plexichrysis*). Holotype female; Afghanistan: Bedakschan Mts. (PRAGUE). N. synonymy.\*

*vagans* Radoszkowski. Palaearctic: s Europe to s USSR.

*vagans* Radoszkowski 1887:11. Syntype females; Uzbek SSR: Sarafschan (KRAKOW ?). (*vagans* group).

*mocsaryi* (Radoszkowski) 1890:508. (*Spintharis*). Holotype; Turkey: Buyuk Agri Dagı ('Mt. Ararat') (KRAKOW ?).

*alexandri* (Buysson) (in André) 1894:390. (*Chrysis*). Holotype male; Turkey: Buyuk Agri Dagı ('Mt. Ararat') (KRAKOW ?).

*armata* (Trautmann) 1928:29. (*Chrysis vagans* var.). Holotype male; USSR: 'Transcaspia, Plavilshikut' (BERLIN).

*extrema* (Semenov and Nikol'skaya) 1954:121. (*Chrysis*). Holotype female; Turkmen SSR: Aivadh (LENINGRAD). N. synonymy.\*

*versicolor* (Spinola). Palaearctic: Europe to sw USSR.

*versicolor* (Spinola) 1808:241. (*Chrysis*). Syntype male, female; Italy: 'Liguria' (TURIN ?). (*versicolor* group).

*patriarchalis* (Radoszkowski) 1880:142. (*Chrysis*). Syntypes; Armenian SSR: Etschmiadzin (KRAKOW ?). N. synonymy.

*helvetica* (Trautmann) 1927:135. (*Dichrysis versicolor* var.). Type ?; Switzerland (BERLIN).

*kuznetzovi* (Semenov) 1967:154. (*Chrysis*). Holotype female; Ukrainian SSR: Crimea south coast (LENINGRAD). N. synonymy.\*



*Spintharosoma* Zimmermann (Figs 143 and 144)

*Spintharosoma* Zimmermann 1959:32. Type: *Spintharis chrysonota* Dahlbom 1854:351. Orig. desig.

*Hyalichroeus* Linsenmaier 1959a:70. Type: *Spintharis chrysonota* Dahlbom 1854:351. Orig. desig. and monobasic.

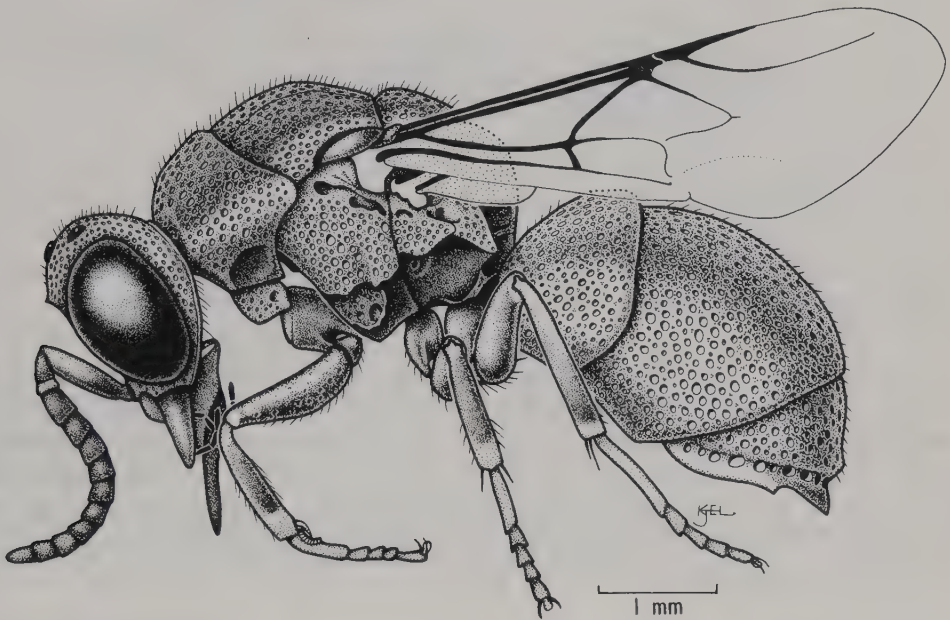


Fig. 143. *Spintharosoma chrysonota*, male.

**Generic diagnosis**

(Based on a study of six males). Moderate sized (5–6 mm); face weakly hollowed, polished medially, punctate with dense silvery setae laterally; F-I ring-like, shorter than pedicel or F-II, 0.28–0.4 times as long as F-II (Fig. 144a); TFC strongly biconvex; malar space 0.3 MOD; subgenal area not defined; subantennal space 1.2 MOD; mid ocellar area not, or only partly, outlined by carinae; mid ocellus not lidded; genal carina separated from eye by 0.3 MOD; pronotum sloping forward, anterior declivity with three pits, medial groove nearly absent; fore wing marginal cell narrow but broadly open, Rs weakly curved but not away from costal edge (Fig. 143), medial vein arising beyond cu-a, discoidal cell complete; legs marked with whitish or yellowish, femorotibial and tibiotarsal joints pale, tarsi pale (Fig. 144f); metanotum simple; mesopleuron with deep scrobal sulcus; propodeal angle somewhat broadened toward

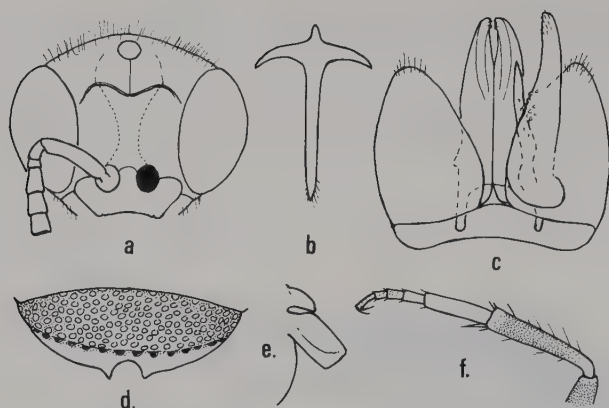


Fig. 144. *Spintharosoma chrysonota*, male. (a) face; (b) S-VIII; (c) genital capsule, ventral, volsella omitted on left side; (d) T-III, dorsal; (e) propodeal angle; and (f) hind tibia and tarsus.

truncate apex (Fig. 144e); T-I short and broad; T-II posterolaterally obtuse, lateral edge 0.4 times medial length; T-III short and broad, pit row depressed and only visible from behind, apical rim broad and whitish all around, with V-shaped or semicircular notch medially (Fig. 144d), angulate apicolaterally; S-II spots large, round, and separated by about 3 MOD. Male terminalia: S-VIII dagger-like (Fig. 144b), gonocoxa stout and without an apical component (Fig. 144c), cuspis protruding beyond gonocoxa and digitus, aedeagus apically slightly knobbed.

## Hosts

Unknown.

## Distribution

*Spintharosoma* occurs in South Africa.

## Discussion

Zimmermann (1959) first recognized the distinctive nature of this genus. He was followed quickly by Linsenmaier (1959a) who established *Hyalichroeus* to include a diversity of generic elements. Linsenmaier (1959a) added to the problem by considering *destituta* a *Hedychridium*. Our examination of the holotype showed it to be a second species of *Spintharosoma*. Only males are known to us. The peculiar antennae are apparently also similar in the female (see below), but the wing venation is enough by itself to separate the genus from *Spintharina* which has the propodeal angle similarly formed.

Edney (1947) gave descriptions and illustrations of three species (under the genus *Spintharis*) which are referable to *Spintharosoma*. These were *destituta*, *deaurata*, and *chrysonota*. We have seen the types of the first two and find them to be synonymous. We have also seen a series of *chrysonota* males. Edney described the females briefly and gave ratios of pedicel, F-I, and F-II lengths as 3:2:3 for *deaurata* and 4:2:3 for *chrysonota*.

### Checklist of *Spintharosoma*

---

*chrysonota* (Dahlbom). Afrotropical: South Africa.

*chrysonota* (Dahlbom) 1854:351. (*Spintharis*). Holotype; South Africa: Cape Prov., 'promontorium bonae spei' (TURIN).

*destituta* (Dahlbom). Afrotropical: South Africa.

*destituta* (Dahlbom) 1854:352. (*Spintharis*). Holotype male; South Africa: Cape Prov., 'promontorium bonae spei' (TURIN).\*

*deaurata* (Mocsáry) 1889:199. (*Spintharis*). Holotype male; 'Africa meridionalis' (VIENNA). N. synonymy.\*

---

### *Stilbichrysis* Bischoff (Figs 6, 145, and 146)

*Stilbichrysis* Bischoff 1910:448. Type: *Stilbichrysis biselevata* Bischoff 1910:448. Monobasic.

*Afrospinolia* Linsenmaier 1968:42 Type: *Euchroeus katanganus* Linsenmaier 1968:42 (= *Chrysis aurovirens* Mocsáry 1913a:43). Orig. desig.

### Generic diagnosis

Medium to large sized (8–13 mm long); tongue relatively long; face shallowly concave, punctate in a somewhat cross-ridged pattern; LID about equal to or a little more than eye breadth; F-I length about twice breadth (Fig. 146a); TFC undeveloped on a weak brow; malar space 0.5–1.1 MOD; subantennal space 2.0–2.5 MOD; mid ocellar area defined by a carina except in front; mid ocellus not lidded but with a mid ocellar ridge behind; genal carina separated from eye by 0.2 MOD; no subgenal area; pronotum shorter than scutellum, anterior declivity with four pits, medial groove not sharp, lateral depression deep and bordered above by a nearly complete carina; fore wing marginal cell broadly open (Fig. 145), Rs distinct for only two-thirds of distance to wing edge, discoidal cell complete; hind wing venation relatively complete, Rs as in fore wing, M+Cu forked distally, anal vein sclerotized (Fig. 6); scutellum raised, nearly flat; metanotum well below scutellum, aciculate; mesopleuron with two widely separated teeth, one on either side of deep scrobal sulcus; propodeal projection stout, pointed, and somewhat convex behind; T-I with anterolateral corner rounded; T-II without a medial carina, distal rim depressed and flattened, posterolateral corner acute

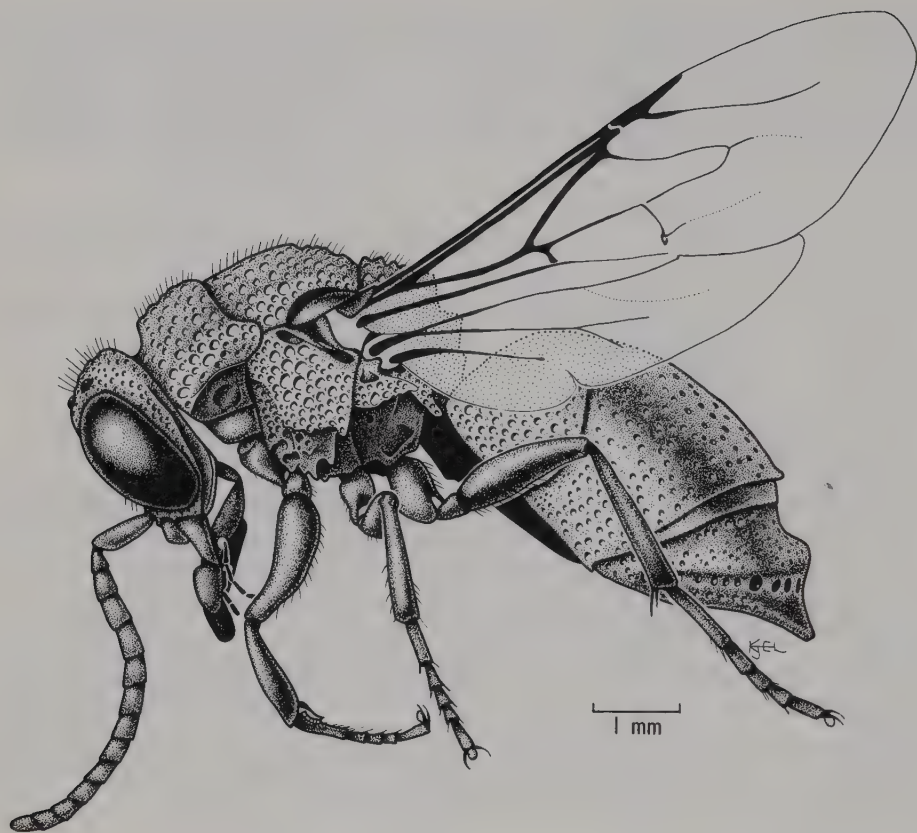


Fig. 145. *Stilbichrysis biselevata*, male.

and sharp; T-III pit row distinct beneath overhanging prepit bulge, no apical teeth, lateral margin minutely serrulate-denticulate (Fig. 146e); S-II spots large, joining or slightly separated; S-III with well-separated distal spots (Fig. 146c); female T-V and S-V heavily sclerotized, with large lateral ridges. Male terminalia: S-VIII subtriangular and basally appendiculate (Fig. 146b), gonocoxa short and stout but with narrow apical component, cuspis and digitus slender (Fig. 146d).

### Hosts

Unknown.

### Distribution

This genus is East African, occurring in Somalia, Kenya, Mozambique, and Zambia.



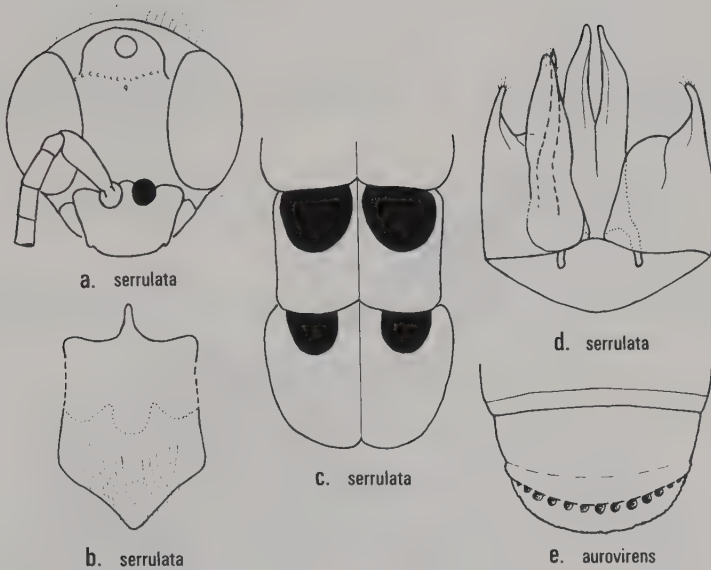


Fig. 146. *Stilbichrysis*, male. (a) face; (b) S- VIII; (c) S-II and S-III; (d) genital capsule, ventral; and (e) T-III, dorsal.

## Discussion

The three known species are odd-looking chrysidids which can be readily distinguished by the facial carina, which lacks a transverse component (TFC), the dentate mesopleuron, edentate but minutely denticulate T-III, and elevated scutellum. *Stilbichrysis* superficially resemble *Spinolia* and *Pseudospinolia*, and one species, *aurovirens*, has been treated as a subgenus of *Spinolia* (*Afrospinolia*) by Linsenmaier (1968). Few specimens of this genus exist in collections, we have seen only seven individuals, including the types of *aurovirens*, *biselevata*, and *serrulata*.

In many respects *Stilbichrysis* are also similar to *Stilbum*. Both genera exhibit similar antennae, long subantennal space, a carina over the lateral pronotal depression, raised scutellum, deep scrobal sulcus, similar propodeal angle, T-III pit row under a strong prepit bulge, male S-VIII similar, and similar wing venation. However, there are many obvious differences in *Stilbichrysis* such as the short malar space, mid ocellus not lidded, LID much broader, hind wing with cu-a, metanotum aciculate rather than produced cup-like, T-I rounded basolaterally rather than sharp, and T-III simple and finely denticulate rather than four-toothed and smooth.

## Checklist of *Stilbichrysis*

---

*aurovirens* (Mocsáry). Afrotropical: Zaire.

*aurovirens* (Mocsáry) 1913a:43. (*Chrysis*). Holotype female; Zaire: Leopoldville (BUDAPEST).\*

*katanganus* (Linsenmaier) 1968:42. (*Euchroeus*). Holotype female; Zaire; Katanga (LUZERN). N. synonymy.

*biselevata* Bischoff. Afrotropical: Somalia.

*biselevata* Bischoff 1910:448. Holotype female; Somalia (BERLIN).\*

*serrulata* (Edney). Afrotropical: Zambia, Mozambique.

*serrulata* (Edney) 1962:859. (*Euchroeus*). Lectotype female (desig. Bohart herein); Zambia: Lake Mweru (CAPE TOWN).\*

---

## *Stilbum* Spinola (Figs 8b, 9b, 147 and 148)

*Stilbum* Spinola 1806:9. Type: *Chrysis calens* Fabricius 1781:455 (= *Chrysis cyanura* Förster 1771:89). Desig. by Latreille 1810:437.

## Generic diagnosis

Large species, length 7 (exceptional) to 22 mm; face and scapal basin quite narrow (LID less than length of scape plus pedicel), finely to moderately coarsely cross-ridged (Fig. 148a); F- I 1.5–2.0 times as long as broad; TFC a weak callosity or an inverted crescent connected to a carina circling above mid ocellus; malar space 2–4 MOD; mandible essentially without inner tooth; subantennal space 4–5 MOD; mid ocellar area raised, completely defined except sometimes anteriorly and posteriorly; mid ocellus lidded; genal carina about 0.5 MOD from eye; subgenal area not defined; pronotum much shorter than scutellum, medial groove present and broad anteriorly, lateral depression deep and partly edged above by carina; fore wing marginal cell broadly open (Fig. 147), Rs, if extended along wing fold, ending just anterior to wing tip, discoidal cell complete; hind wing venation relatively complete, Rs as in fore wing, M+Cu and anal veins present; metanotum with long oval cup-shaped projection (Fig. 148e); mesopleuron (Fig. 147) with deep scrobal sulcus, lower mesopleuron with three teeth, lowest one large, upper mesopleuron with medial vertical polished area like one on metapleuron; propodeal angle stout, apical point projecting posteriorly; T-I sharply rounded and briefly welted anterolaterally, short medially (Fig. 148d); T-II long, medial ridge polished, posterolateral corner acute and sharp; T-III with short strong prepit ridge overhanging well-developed pit row, narrow apical rim four-dentate (Fig. 148d); female T-V with heavily sclerotized ridges and dentate laterally; T-VI with heavily sclerotized sharp apical tooth (Fig. 9b); S-II spots rounded, 4–5 MOD apart. Male terminalia: S-VIII subtriangular with prominent mediobasal apodeme

(Fig. 148*b, c*), gonocoxa triangular and membranous toward apex, digitus and cuspis slender (Fig. 148*f*).



Fig. 147. *Stilbum cyanurum*, male.

## Hosts

*Stilbum* parasitizes various mud-nesting eumenids (*Delta*) and sphecids (*Sceliphron*) (Berland and Berland 1938, Móczár 1961). In addition, Mocsáry (1889) reported *Chalicodoma* as a host of *cyanurum*.

## Distribution

This genus is widespread in the warmer parts of the Old World, occurring throughout Africa, the southern Palearctic, Oriental, and Australian Regions.

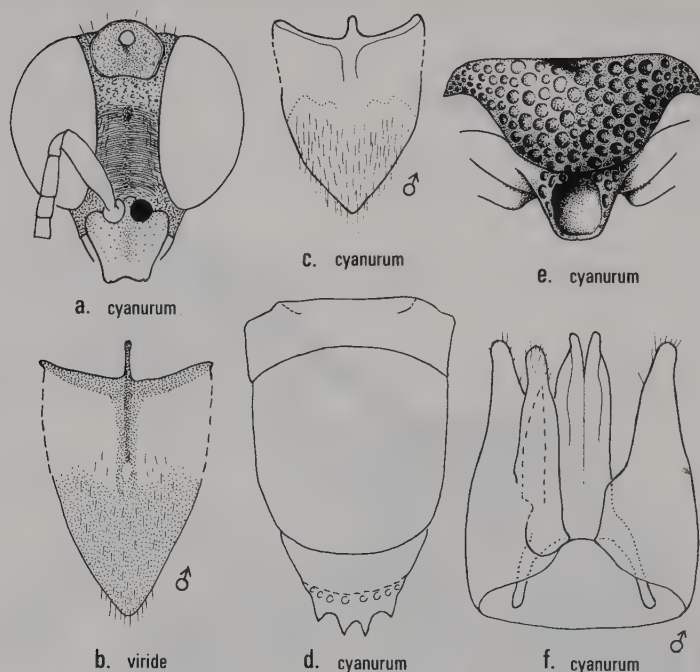


Fig. 148. *Stilbum*. (a) face; (b), (c) S-VIII; (d) abdomen, dorsal; (e) scutellum and metanotum, dorsal; and (f) genital capsule, volsella omitted from right side. Female, except as indicated.

## Discussion

Variability in the colour of the widespread *cyanurum* has led to the proliferation of species and subspecies names. Linsenmaier (1959a) listed six species and eight subspecies, whereas we prefer to treat just three species. In general we agree with Zimmermann (1937), who placed all names under two species, *cyanurum* and *viride*. We are recognizing a third species, *chrysocephalum*, from the Philippines. The colour range of *cyanurum* is considerable, from green to blue to coppery or coppery-red and blue (*calens* colour form). However, colour pattern does seem to have some species significance. As Linsenmaier (1959a) pointed out, *viride* is unique in having T-III (although coppery tinged) the same green base colour as T-I–II. In other *Stilbum*, with rare exceptions, the base colour of T-III is a darker blue to purple than that of T-I–II. In *chrysocephalum* the frons, gena, and vertex are coppery red in contrast to the green–blue–purple of the rest of the body. Also, in the last species the mid ocellar area is less elevated than in the other two, and only irregularly welted below rather than carinate. The great size differences observed in *Stilbum* presumably relate to host size. An apparent relationship between *Stilbum* and *Stilbichrysis* is discussed under that genus.



## Checklist of *Stilbum*

*chrysocephalum* Buysson. Oriental: Philippines.

*chrysocephalum* Buysson 1898b:544. (*splendidum* var.). Syntype male, female; Philippines: Luzon, Manila (PARIS).\*

*flammiceps* Mocsáry 1913c:288. (*cyanurum* var.). Holotype male; Philippines: Luzon, Los Banos (BUDAPEST).\*

*cyanurum* (Förster). Eastern Hemisphere: widespread in tropics and warm temperate areas.

*cyanurum* (Förster) 1771:89. (*Chrysis*). Holotype male; Spain (LONDON).\*

*splendidum* (Fabricius) 1775:357. (*Chrysis*). Syntypes; Australia: New Holland (LONDON, COPENHAGEN).\*

*amethystinum* (Fabricius) 1775:359. (*Chrysis*). Syntypes; Australia (LONDON, COPENHAGEN).

*nobile* (Sulzer) 1776:50. (*Chrysis*). Type ? (Mus. ?).

*calens* (Fabricius) 1781:455. (*Chrysis*). Holotype female; Russian SFSR: Siberia (LONDON).

*punctatissimum* (Villers) 1789:259. (*Chrysis*). Type ? (Mus. ?).

*speciosum* Ghiliani 1842:24. (*calens* var.). Type ? (Mus. ?).

*wesmaeli* Dahlbom 1845:16. Holotype male; Greece: Rhodes Isl. (STOCKHOLM).

*westermanni* Dahlbom 1845:16. Holotype; Greece: Rhodes Isl. (STOCKHOLM).

*spinolae* (Montrousier) 1864:249. (*Chrysis*). Holotype ?; New Caledonia: Woodlark Isl. (Mus. ?).

*variolum* Costa 1864:67. Syntypes; India (NAPLES ?).

*siculum* Tournier 1878:307. Syntype male, female; Switzerland: Leman area (GENEVA ?).

*leveillei* Buysson (In André) 1896:678. (*cyanurum* var.). Syntypes; Viet Nam: Tonkin, India: Bombay (Mus. ?).

*pici* Buysson (In André) 1896:678. (*splendidum* var.). Holotype male; Algeria (Mus. ?).

*caspicum* Buysson (In André) 1896:680. (*splendidum* var.). Syntype males; USSR: "Transcaspia, Otreck" (PARIS ?).

*cupreum* Buysson 1889:544. (*splendidum* var.). Holotype female; Tanzania: Bagamoyo (PARIS).

*auratum* Trautmann 1920:240. (*cyanurum* var.). Holotype female; China (BERLIN).

*luzonense* Rohwer 1921b:692. (*cyanurum* var.). Holotype female; Philippines: Luzon, Los Banos (WASHINGTON).

*macedonicum* Trautmann 1926a:6. (*cyanurum* var.). Type ?; Yugoslavia: Macedonia (BERLIN).

*schischmai* Mader 1933:126. (*cyanurum* ab.). Invalid name.

*subsiculum* Mader 1933:126. (*cyanurum* ab.). Invalid name.

*parcepunctatum* Mader 1933:126. (*cyanurum* var.). Type ? (Mus. ?).

*subcalens* Mader 1933:126. (*calens* ab.). Invalid name.

*pacificum* Linsenmaier 1951:89. (*cyanurum* var.). Syntypes; Japan, New Guinea, Australia (LUZERN).

*enslini* Linsenmaier 1951:90. (*calens* var.). Syntype male, female; Italy: Sicily, Palermo (LUZERN).

- concolor* Linsenmaier 1951:92. (*chrysocephalum* var.). Holotype; Australia: (LUZERN).  
*subcalens* Linsenmaier 1951:90. (*calens* var.). Repl. name for ab. *subcalens* Mader 1933.  
*zimmermanni* Linsenmaier 1959a:181. (*calens* ssp.). Holotype female; Switzerland: Wallis (LUZERN). N. synonymy.  
*borneense* Linsenmaier 1959a:181. (*cyanurum* ssp.). Holotype female; Borneo (LUZERN). N. synonymy.  
*porosanum* Linsenmaier 1959a:182. (*calens* ssp.). Holotype male; Greece: Poros Isl. (LUZERN). N. synonymy.  
*sokotranum* Linsenmaier 1987:156. (*cyanurum* ssp.). Holotype female; Aden: Sokotra Isl. (LONDON). N. synonymy.  
*viride* Guérin. Afrotropical: Madagascar.  
*viride* Guérin 1842:144. Holotype female; Madagascar (GENOA).
- 

### *Trichbrysis* Lichtenstein (Figs 149 and 150)

- Trichbrysis* Lichtenstein 1876:27. Type: *Chrysis cyanea* Linnaeus 1758:572. Monobasic.  
*Alocobrysis* Haupt 1956:83. Type: *Chrysis cyanea* Linnaeus 1758:572. Monobasic.

### Generic diagnosis

Face nearly always transversely ridged-punctate (Fig. 150e), scapal basin moderately concave; TFC often a medial and inverted obtuse V (Fig. 150a), sometimes nearly complete, sometimes absent, sometimes above a sharp and nearly cariniform brow; F-I usually 2.0–2.5 MOD, at least as long as F-II or pedicel, extreme lengths 1.2 MOD (male) and 3.8 MOD (female); malar space usually 1–2 MOD, longer than subantennal space (one species 3.5 MOD); mid ocellar area rarely defined; mid ocellus not lidded; subgenal area sometimes partly defined; pronotum shorter than scutellum, lateral depression deep; fore wing Rs long, nearly complete, marginal cell ending acutely (Fig. 149), discoidal cell sometimes faint outwardly; metanotum simple; mesopleuron with scrobal sulcus which may be areolate, omaulus absent above scrobal sulcus; propodeal angle incurved posteriorly to nearly straight; T-II sometimes highly coloured, apicolateral angle nearly 90°, medial carina weak; T-III with three apical teeth or denticles (Fig. 150b, d), intervening edge may be lobulate (Fig. 150c); S-II spots small, double, or fused; female T-V–VI simple. Male terminalia: S-VIII subtriangular, gonocoxa usually stout near apex (Fig. 150f, h), rarely ligulate apically, cuspis broadly rounded.

### Hosts

A variety of hosts have been recorded for *cyanea*, as listed by Trautmann (1927): *Trypoxylon*, *Nitela*, and *Cemonus* in the Sphecidae, *Ancistrocerus* in the Eumenidae, and *Chelostoma*, *Osmia*, and *Heriades* in the Megachilidae.



Fig. 149. *Trichbrysis cyanea*, female.

## Distribution

*Trichbrysis* is well represented in the Afrotropical (seven species), Palaearctic (eleven species) and Oriental Regions (seven species).

## Discussion

*Trichbrysis* has frequently been confused with other genera, some of whose species may have a tridentate T-III. This confusion especially concerns the New World genus *Caenobrysis*. Linsenmaier (1984) described 32 new species from South America in *Trichbrysis* and one of these (*rossi*) with mistaken locality is an Asian form. *Trichbrysis* differs in several respects from *Caenobrysis*. The sublateral facial pits of the latter are an immediate separation point. In addition, *Trichbrysis* always has three denticles or teeth on T-III although the middle one may be tiny in males, S-II spots are medial, and the metanotum is simple. All of these last features are variable in *Caenobrysis*. Other genera with one or more tridentate species are *Allochrysis*, *Chrysidea*, *Odonotobrydium*, and *Primeuchroeus*; differences from *Trichbrysis* are discussed under those genera.

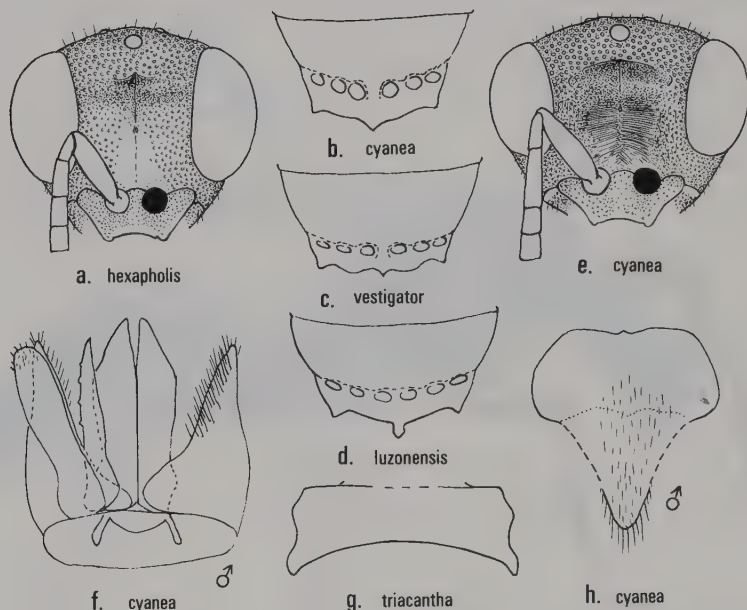


Fig. 150. *Trichbrysis*. (a), (e) face; (b)–(d) T-III; (f) genital capsule, ventral, volsella omitted on right side; (g) pronotum, dorsal; and (h) S-VIII. Female, except as indicated.

Of the 26 listed species, we have been able to study types or other authenticated specimens of 23. We are not familiar with *coreana*, *purpuripyga*, or *sudai*, and some additional synonymy may be in order. The genus exhibits considerable morphological diversity, especially in the pronotal shape, but the differences between species are rather gradual and do not lend themselves to the formation of species groups. Most species have the pronotum markedly concave laterally in dorsal view (Fig. 150g), and with a continuous sublateral carina; examples are *cyanea*, *triacantha*, and *buyssoni*. A few species, such as *trigona*, *eardleyi*, and *hexapholis* have the concavity but the carina is broken medially. Other species with a slight concavity and no carina are *polinierii*, *heliophila*, and *impressifrons*. In some species, such as *buyssoni*, there may be a sharp medial pronotal groove, but in others, as in *impressifrons*, hardly any groove. TFC is most often a small, obtuse inverted V. In *buyssoni*, *eardleyi*, and *excisifrons* TFC is continued almost to the ocular margin. In *vestigator* it has backward branches which delimit a mid ocellar area. In many species the brow is quite sharp and looks like a second TFC a little below the first. TFC is absent in *bohemani* and obsolescent in *heliophila*. The only two species we have seen with a long malar space (3.5 MOD) are *lomboldti* and *impressifrons*. Most species have the fore wing discoidal cell complete



even though the outer veins may be narrow. However, in *bohemani* both outer veins are quite faint. The shape of the apical teeth on T-III is an important taxonomic character. In *cyanea* the medial one is a denticle and the outer ones simply angles. In *bohemani* all three are denticles. At the other extreme, as in *hexapholis*, the teeth are long and sharp. Bohart (1988a) gave a key to species, and described several new ones.

### Checklist of *Trichrysis*

---

*aspera* (Brullé). Oriental: Philippines

*aspera* (Brullé) 1846:46. (*Chrysis*). Holotype female; Philippines: Luzon, Manila (TURIN ?).

*bohemani* (Dahlbom). Afrotropical: Zaire, Zimbabwe, South Africa.

*bohemani* (Dahlbom) 1845:12. (*Chrysis*). Holotype male; South Africa: 'Port Natal' (STOCKHOLM).\*

*minuta* (Mocsáry) 1908:507. (*Chrysogona*). Holotype female; South Africa: Transvaal Prov., Lichtenburg (PRETORIA-TM). N. synonymy.\*

*inornata* Edney 1953:536. Holotype female; Zimbabwe: Bulawayo (LONDON). N. synonymy.\*

*buyssoni* (Mocsáry). Palaearctic: Middle East to China.

*pellucida* (Buysson) 1887b:183. (*Chrysis*). Syntype male, female; 'Asia Minor', China (PARIS). Nec Radoszkowski 1877.\*

*buyssoni* (Mocsáry) 1889:323. (*Chrysis*). Repl. name for *pellucida* Buysson 1887b.

*mongolica* (Mocsáry) 1914:24. (*Chrysis*). Lectotype female (desig. Bohart herein); Mongolia (BUDAPEST).\*

*neptunia* (Semenov) 1967:162. (*Chrysis*). Holotype female; Korea: Pal'Makh (LENINGRAD). N. synonymy.\*

*coreana* (Uchida). Palaearctic: Korea.

*coreana* (Uchida) 1927:153. (*Chrysis*). Syntype females; Korea: Suigen, Seiryori (Mus. ?).

*cyanea* (Linnaeus). Palaearctic: Eurasia (widespread).

*cyanea* (Linnaeus) 1758:572. (*Sphex*). Lectotype male (desig. Morgan 1984); 'Europae' (LONDON).\*

*veridans* (Harris) 1776:69. (*Chrysis*). Type?; England (lost). N. synonymy.

*cuprea* (Geoffroy) 1785:441. (*Vespa*). Type ?; France: Paris (Mus. ?).

*bidentata* (Villers) 1789:256. (*Chrysis*). Type ? (Mus. ?).

*adentis* (Zirngiebl) 1953:171. (*Chrysis cyanea* var.). Holotype female; Germany (Mus. ?).

*eardeleyi* Bohart. Afrotropical: Nigeria, Tanzania, South Africa.

*eardeleyi* Bohart 1988a:350. Holotype male; South Africa: Transvaal Prov., Kruger National Park, Pafuri (PRETORIA-NIC).\*

*excisifrons* (Mocsáry). Palaearctic: n India, Nepal.

- excisifrons* (Mocsáry) 1912a:379. (*Chrysis*). Holotype female; India: Sikkim (BUDAPEST).\*
- heliophila* (Mocsáry). Afrotropical: Zaire and Congo to South Africa.
- heliophila* (Mocsáry) 1899:485. (*Chrysis*). Holotype male; Tanzania: Ukamiberge (BUDAPEST).\*
- convexifrons* (Mocsáry) 1902a:546. (*Chrysis*). Syntype female, male; South Africa: Cape Prov., Algoa Bay (PRETORIA-TM).\*
- kameruna* Bischoff 1910:457. Syntype male, 'female; nord-kamerun: Johann-Albrechtshoebe'; Guinea (BERLIN).
- hexapholis* Bohart. Oriental: Sri Lanka.
- hexapholis* Bohart 1988a:350. Holotype female; Sri Lanka: Colombo (SAN FRANCISCO).\*
- impressifrons* (Mocsáry). Afrotropical: Zaire, South Africa.
- impressifrons* (Mocsáry) 1902b:547. (*Chrysis*). Holotype female; South Africa: Cape Prov., Uitenhage (PRETORIA-TM).\*
- microsoma* (Mocsáry) 1908b:512. (*Chrysis*). Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*
- obscurata* (Mocsáry) 1908b:513. (*Chrysis*). Holotype male; South Africa: Cape Prov., Willowmore (PRETORIA-TM). N. synonymy.\*
- lacerta* (Semenov). Palaearctic: Greece, Cyprus, North Africa, s USSR.
- cypria* (Mocsáry) 1902b:341. (*Chrysis*). Holotype female; Cyprus (BUDAPEST). Nec Buysson 1898b.\*
- lacerta* (Semenov) 1954a:122. (*Chrysis*). Repl. name for *cypria* (Mocsáry) 1902b.
- devia* (Linsenmaier) 1959a:170. Repl. name for *cypria* Mocsáry 1902b.
- lanka* (Bingham). Oriental: Sri Lanka, s India.
- lanka* (Bingham) 1903:451. (*Chrysis*). Holotype female; Sri Lanka: Peradeniya (LONDON?).
- spectrum* (Wickwar) 1908:121. (*Chrysis*). Lectotype female (desig. Bohart herein); Sri Lanka: Colombo (LONDON). N. synonymy.\*
- lomboldti* Bohart. Afrotropical: Namibia.
- lomboldti* Bohart 1988a:351. Holotype female; Namibia: 110 km e Windhoek (PRETORIA-NIC).\*
- longispina* (Mocsáry). Palaearctic: Middle East.
- longispina* (Mocsáry) 1912a:377. (*Chrysis*). Holotype female; Saudi Arabia: Lahej (BUDAPEST).\*
- luzonica* (Mocsáry). Oriental: Philippines, Taiwan, Hong Kong.
- luzonica* (Mocsáry) 1889:328. (*Chrysis*). Holotype female; Philippines: Luzon (KRAKOW?).
- bakeri* (Mocsáry) 1913c:290. (*Chrysis*). Holotype male; Philippines: Luzon, Los Banos (BUDAPEST). N. synonymy.\*
- taial* (Tsuneki) 1970b:11. (*Chrysis*). Holotype female, Taiwan: Nanton Pref., Puli (Mus.?). N. synonymy.

*mendicalis* (Cameron). Oriental: widespread.

*mendicalis* (Cameron) 1897a:4. (*Chrysis*). Holotype female; India: Bengal, Barrackpore (OXFORD).\*

*danae* (Bingham) 1903:483. (*Chrysis*). Holotype female; Burma (LONDON). N. synonymy.\*

*polinierii* (Guérin). Afrotropical: widespread.

*polinierii* (Guérin) 1842:149. (*Chrysis*). Lectotype female (desig. Bohart herein); Senegal (PARIS).\*

*violacea* Bischoff 1910:458 (*fraterna* var.). Holotype female; Congo: Kiwu-See (BERLIN).\*

*arushana* (Mocsáry) 1912a:375. (*Chrysis*). Holotype female; Tanzania: Arusha (BUDAPEST).\*

*auromarginata* (Mocsáry) 1912a:376. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Tanzania: Dar-Es-Salaam (BUDAPEST).\*

*congolensis* (Mocsáry) 1914:23. (*Chrysis*). Holotype female; Congo: Lualaba River (LONDON). N. synonymy.\*

*pumilionis* (Linsenmaier). Palaearctic: Switzerland.

*pumilionis* (Linsenmaier) 1987:155. (*Chrysis*). Holotype female; Switzerland: Wallis (LUZERN).

*purpuripyga* (Edney). Afrotropical: South Africa.

*purpuripyga* (Edney) 1953:533. (*Chrysis*). Syntype males, females; South Africa: Cape Prov., Willowmore (PRETORIA-TM).

*scioensis* (Gribodo). Afrotropical: Tanzania to South Africa.

*scioensis* (Gribodo) 1879:344. (*Chrysis*). Holotype female; 'E. Africa' (GENOA).\*

*secernenda* (Mocsáry). Palaearctic: s USSR.

*secernenda* (Mocsáry) 1912a:376. (*Chrysis*). Lectotype male (desig. Bohart 1986b); Uzbek SSR: Gouldsha (BUDAPEST).\*

*seducta* (Smith). Oriental: Indonesia.

*seducta* (Smith) 1860:67. (*Chrysis*). Lectotype female (desig. Bohart herein); Celebes: Makassar (OXFORD).\*

*sudai* (Tsuneki). Palaearctic: Japan.

*sudai* (Tsuneki) 1977:1. (*Chrysis*). Holotype female; Japan: Iino, Sakura City, Chiba Pref. (TSUKUBA).

*triacantha* (Mocsáry). Oriental: widespread.

*triacantha* (Mocsáry) 1889:325. (*Chrysis*). Holotype female; Indonesia: Sumatra (VIENNA).

*singalensis* (Mocsáry) 1889:324. (*Chrysis*). Syntype females; Sri Lanka (BERLIN, GENOA). N. synonymy.

*sumbawana* (Mocsáry) 1912a:378. (*Chrysis*). Holotype female; Indonesia: Sumbawa Isl. (BUDAPEST). N. synonymy.\*

*formosana* (Mocsáry) 1912a:380. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Taiwan: Takao (BUDAPEST). N. synonymy.\*

- sauteri* (Mocsáry) 1912a:381. (*Chrysis*). Holotype male; Taiwan: Takao (BUDAPEST). N. synonymy.\*
- tonkinensis* (Mocsáry) 1914:25. (*Chrysis*). Holotype female (not male); China: Tonkin (BUDAPEST). N. synonymy.\*
- cyanescens* (Mocsáry) 1914:26. (*Chrysis tonkinensis* var.). Holotype female; China: Poo Chow (LONDON). N. synonymy.\*
- transmutata* (Mocsáry) 1914:26. (*Chrysis*). Lectotype female (desig. Bohart 1986b); Burma: Tenasserim (BUDAPEST). N. synonymy.\*
- bicarinata* (Tsuneki) 1950:69. (*Chrysis*). Holotype female; China: Hong Kong (HOKKAIDO). N. synonymy.
- saohime* (Tsuneki) 1950:68. (*Chrysis*). Holotype female; Japan: Nagano (TSUKUBA). N. synonymy.
- amamiensis* (Tsuneki) 1975:29. (*Chrysis formosana* ssp.). Holotype female; Japan: Kunetsu Isl., Amami-Oshima (TSUKUBA ?).
- rossi* Linsenmaier 1984:207. Holotype female; Philippines (Chile !): San Jose, Mindoro (SAN FRANCISCO). N. synonymy.\*
- trigona* (Mocsáry). Oriental: Indonesia, Laos, Hong Kong.
- trigona* (Mocsáry) 1889:327. (*Chrysis*). Holotype female; Celebes: Bonthain (BUDAPEST).\*
- vestigator* (Smith). Oriental: Sri Lanka, Laos, Indonesia, Philippines.
- vestigator* (Smith) 1858:128. (*Chrysis*). Holotype female; Borneo (OXFORD).\*
- quinquedentata* (Mocsáry) 1883:17. (*Chrysis*). Holotype female (not male); Indonesia: Java (BUDAPEST). N. synonymy.\*
- miri* (Brown) 1906:685. (*Chrysis*). Holotype male; Philippines: Luzon, Manila (Mus. ?). N. synonymy.

## TRIBE PARNOPINI

The tribe Parnopini is a small group, composed of three genera, *Parnopes*, *Cephaloparnops*, and *Isadelphina*. They differ from other Chrysidinae in having four external gastral terga in males and three in females, and a very large tegula that covers both wing bases. This group occurs in the Holarctic and Afrotropical Regions.

### DIAGNOSTIC CHARACTERISTICS

1. Preocciput with transverse groove above occipital carina.
2. Tongue as long as eye height or much longer.
3. Genal carina present, although sometimes faint.
4. Clypeus convex, with ventral half curved under and mostly non-metallic.



5. Mandible long and slender, with one small subapical tooth.
6. Pronotum depressed medially, with complete or partial transverse anterior carina, usually broken medially (at least represented by lateral tooth in *Isadelphina*).
7. Scutum with notauli represented by fine line and/or impunctate stripe, parapsides present.
8. Mesopleuron with omaulus and scrobal carina delimiting epimeral plate; also with scrobal pit, subalar fovea, and faint episternal sulcus.
9. Tegula large, covering both wing bases.
10. Scutellum without anterolateral lobe projecting into wing fossa.
11. Metanotum with large, often mucronate medial projection, laterally carinate with lobe adjacent to propodeal angle.
12. Propodeum abruptly declivitous posteriorly, with large subtriangular lateral angle.
13. Fore femur with ventral carina.
14. Tarsal claws edentate, arolium tiny.
15. Fore wing Rs shorter than stigma, discoidal cell represented by faint stained lines, or absent.
16. Hind wing with veins C, Sc, and Cu short.
17. Male with four external abdominal segments, female with three; apical tergum thickened before posterior margin, drawn out medially, with large subapical fovea on either side, and apical margin irregularly denticulate.
18. Male genital capsule with digitate gonostyle and volsella simple, broad, and membranous.

## SYSTEMATICS

The three genera in this tribe are closely related. This has made decisions concerning generic groupings difficult. Kimsey (1987b) reviewed the Parnopini and divided it into two genera, *Parnopes* and *Isadelphina*, and *Parnopes* into two subgenera, *Parnopes s.* and *Cephaloparnops*. Subsequent study of this group indicates that this approach was too conservative, making *Parnopes* polyphyletic. Modifications of the tongue are the principle diagnostic features distinguishing these taxa. *Parnopes s. s.* and *Cephaloparnops* have been considered congeneric because both have very long, tubular tongues (Figs. 152c and 156c), unlike *Isadelphina* (Fig. 154a). However, the metanotal projection, propodeal angles, and pronotum indicate a close relationship between *Cephaloparnops* and *Isadelphina*. As a result we are treating each of these three taxa as a discrete genus.

## KEY TO GENERA OF PARNOPINI

- 
1. Maxillary palpus with 3 or fewer articles; labial palpus with 1 article or absent (Fig. 156c); metanotal projection large and mucronate in profile, apical margin truncate, bilobate or irregularly trilobate (Fig. 156e, f); fore femur without sharp ventral tooth; propodeal angle not deeply emarginate posteriorly (Fig. 156d) *Parnopes* Latreille, p.581
- Maxillary palpus with 3 or 5 articles; labial palpus with 2–3 articles (Figs. 152c and 154a); metanotal projection small and rounded, deeply notched or truncate in profile, apical margin truncate or rounded (Fig. 154e); fore femur with sharp ventral tooth (Fig. 154d); propodeal angle usually deeply emarginate posteriorly (Fig. 154c) 2
- 
2. Tongue much longer than eye height and tubular, galea and glossa greatly elongate (Fig. 152c); tegula mostly non-metallic and inner margin usually deeply emarginate posteriorly *Cephaloparnops* Bischoff, p.576
- Tongue subequal to eye height, not tubular, galeae and glossa not unusually elongate (Fig. 154a); tegula metallic and inner margin not emarginate *Isadelphbia* Semenov, p.579
- 

*Cephaloparnops* Bischoff (Figs. 151 and 152)

*Cephaloparnops* Bischoff 1910:435. Type: *Parnopes elegans* Klug 1845:Table 45 Fig. 1 (= *Parnopes denticulatus* Spinola 1838:455). Monobasic.

## Generic diagnosis

Tongue tubular and longer than eye height, with greatly elongate galea and glossa (Fig. 152c); maxillary palpus with three or five articles; labial palpus with 2–3 articles; scapal basin usually with dense silvery pubescence; pronotum evenly curved anteriorly, without transverse carina, with sharp anterolateral tooth; mesopleuron without projecting lobe above scrobe (Fig. 151); tegula comma-shaped, strongly emarginate posterolaterally in dorsal view; metanotal projection subrectangular in profile; propodeal angle slender, deeply emarginate posteriorly (Fig. 152b); fore femur with sharp ventral tooth. Male genitalia (Figs. 152a, d): gonocoxa short and rounded with slender apical gonostyle; volsella broad and membranous.

## Hosts

Unknown

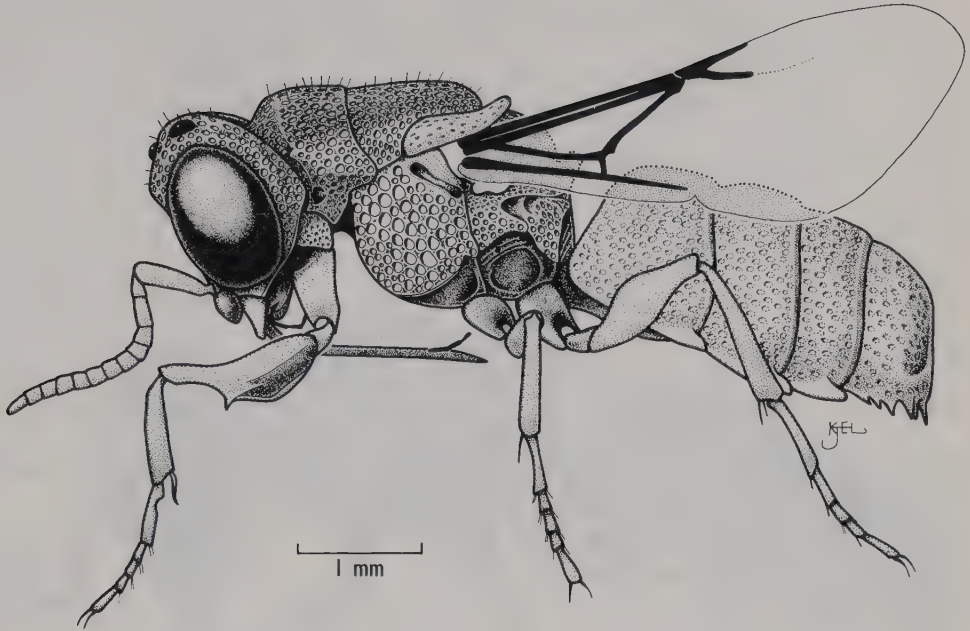


Fig. 151. *Cephaloparnops denticulatus*, male.

## Distribution

Members of this genus occur in North Africa and India.

## Discussion.

Structurally, *Cephaloparnops* is somewhat intermediate between *Isadelphia* and *Parnopes*, having the long tubular tongue of *Parnopes*, but the shape of the pronotum, fore femur, metanotal projection, and propodeal angles resembling those of *Isadelphia*. Specialized features of *Cephaloparnops* are: the comma-shaped tegula, dentate fore femur, and greatly elongate galea and glossa. The placement of one species, *vareillesi* is somewhat enigmatic. The palpal articles are reduced to 3:2 and the propodeal tooth is subtriangular and not deeply notched posteriorly. These modifications resemble those found in *Parnopes*. However, the shape of the pronotum, fore femur, and metanotal projection, as well as the colour of the tegula and terga most closely align this species with other *Cephaloparnops*. Conversely, the dark terga and tegula and short tongue of *oberthuri* resemble conditions characteristic of *Isadelphia*.

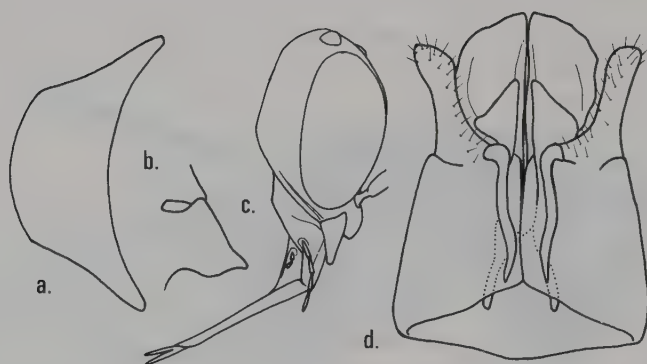


Fig. 152. *Cephaloparnops denticulatus*, male. (a) S-VIII; (b) propodeal angle; (c) head, lateral; and (d) genital capsule, ventral.

### Checklist of *Cephaloparnops*

*denticulatus* (Spinola). Palaearctic: North Africa, Middle East, Iran.

*denticulatus* (Spinola) 1838:455. (*Parnopes*). Holotype male; Egypt (TURIN).\*

*elegans* (Klug) 1845: Insect Table 45, Fig.1. (*Parnopes*). Type ?; Egypt (BERLIN ?).

*pallispinosus* (Walker) 1871:6. (*Euchroeus*). Type ?; Egypt (destroyed by insect pests).

*arabs* (Mocsáry) 1913a:44. (*Parnopes*). Holotype male; Aden (BUDAPEST).\*

*niloticus* (Morice) 1916:264. (*Parnopes*). Lectotype male (desig. Kimsey 1986c); Egypt: Khartum (OXFORD).\*

*oberthuri* (Buysson). Oriental: India.

*oberthuri* (Buysson) 1904:273. (*Parnopes*). Holotype female; India: Maissoor, Silvapoor (PARIS).\*

*vareillesi* (Buysson). Palaearctic: North Africa, Middle East, Iran.

*vareillesi* (Buysson) 1900:157. (*Parnopes*). Lectotype female (desig. Kimsey 1986c); Algeria: Biskra (PARIS).\*

*abruptus* Semenov 1912:180. Holotype male; Iran: Kerman Prov., Sarhad Dist., Podagi (LENINGRAD).\*

*medus* Semenov 1967:183. Holotype female; Iran: Shakhrud (LENINGRAD).\*

*incuratus* (Panfilov) 1969:36. (*Parnopes*). Lectotype female (desig. Kimsey 1987b); Azerbaijan SSR: Byandoran (MOSCOW).\*



*Isadelphina* Semenov (Figs. 153 and 154)

*Isadelphus* Semenov 1901:27. Type: *Parnopes schmiedeknechti* Mocsáry 1899:493. Monobasic. Nec Förster 1868.

*Isadelphina* Semenov 1902b:353. Repl. name for *Isadelphus* Semenov 1901.

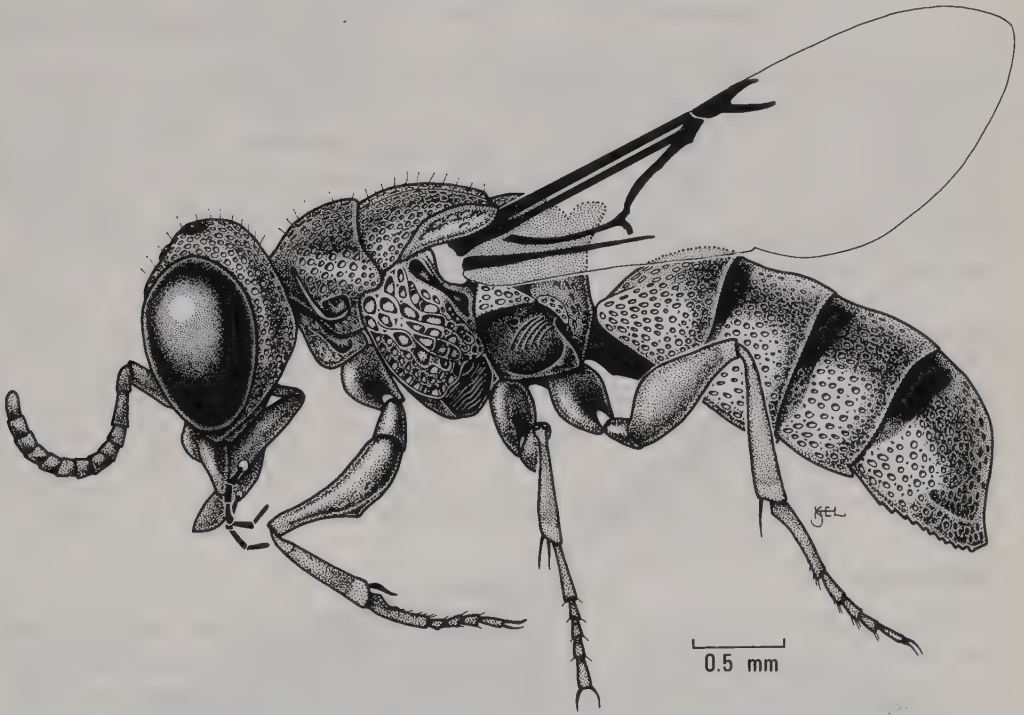


Fig. 153. *Isadelphina schmiedeknechti*, male.

**Generic diagnosis**

Tongue length subequal to eye height, not tubular, and galea and glossa not usually elongate (Fig. 154a); maxillary palpus with five articles; labial palpus with three; scapal basin without dense appressed silvery setae (Fig. 154b); pronotum evenly curved anteriorly, with transverse carina and sharp anterolateral tooth; mesopleuron without distinct lobe above scrobe (Fig. 153); tegula subovoid and metallic; metanotal projection subrectangular, apical margin truncate; scutellum evenly rounded (*schmiedeknechti*) or elevated and posteriorly emarginate (*somalina*) (Fig. 154e); propodeal angle slender, deeply emarginate posteriorly; fore femur with sharp ventral tooth (Fig. 154d).

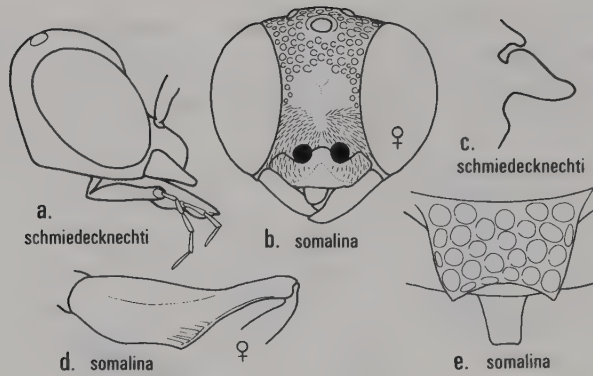


Fig. 154. *Isadelphia*. (a) head, lateral; (b) face; (c) propodeal angle; (d) fore femur, outer surface; and (e) scutellum and metanotum, dorsal. Male, except as indicated.

## Hosts

Unknown

## Distribution.

*Isadelphia* are recorded from Ethiopia and the Middle East.

## Discussion.

This genus is the most primitive in the Parnopini since it has few specializations other than those diagnostic for the tribe. The tongue is similar to that found throughout the Chrysidini and Elampini. However, the shape of the pronotum, metanotal projection, propodeal angle, and dentate fore femur indicate a close relationship with *Cephaloparnops*. *Isadelphia* are rarely collected and only a few can be found in collections. They are relatively small, ranging from 4–6 mm in length, with the terga and tegula entirely metallic green to green-gold or coppery. The two species in *Isadelphia* closely resemble each other, differing primarily in the shape of the metanotal projection.

## Checklist of *Isadelphia*

*schmiedecknehti* (Mocsáry). Palearctic: Middle East, Egypt, Turkey.

*schmiedecknehti* (Mocsáry) 1899:493. (*Parnops*). Lectotype female (desig. Kimsey 1987b); Lebanon: 'Brumana' (BUDAPEST).\*

*zarudnii* Semenov 1967:182. Holotype male; Iran: Isfahan (LENINGRAD).\*

*somalina* (Zimmermann). Palearctic: Ethiopia.

*somalina* (Zimmermann) 1952:362. (*Isadelphus*). Holotype female; Ethiopia: Gondaraba (VIENNA).\*

*Parnopes* Latreille (Figs. 5d, 7g, 155, and 156)

*Parnopes* Latreille 1796:126. (No species). Latreille 1802:317. Type: *Chrysis carnea* Fabricius 1775:357 (= *Chrysis grandior* Pallas 1771:474.). Monobasic.

**Generic diagnosis**

Tongue much longer than eye height and tubular, with greatly elongate galea and glossa (Fig. 156c); maxillary palpus with three or fewer articles; labial palpus with two articles or absent; scapal basin with (Fig. 156a) or without appressed silvery setae; pronotum with transverse anterior carina broken medially and strongly projecting sublaterally; mesopleuron with large, somewhat projecting lobe above scrobe

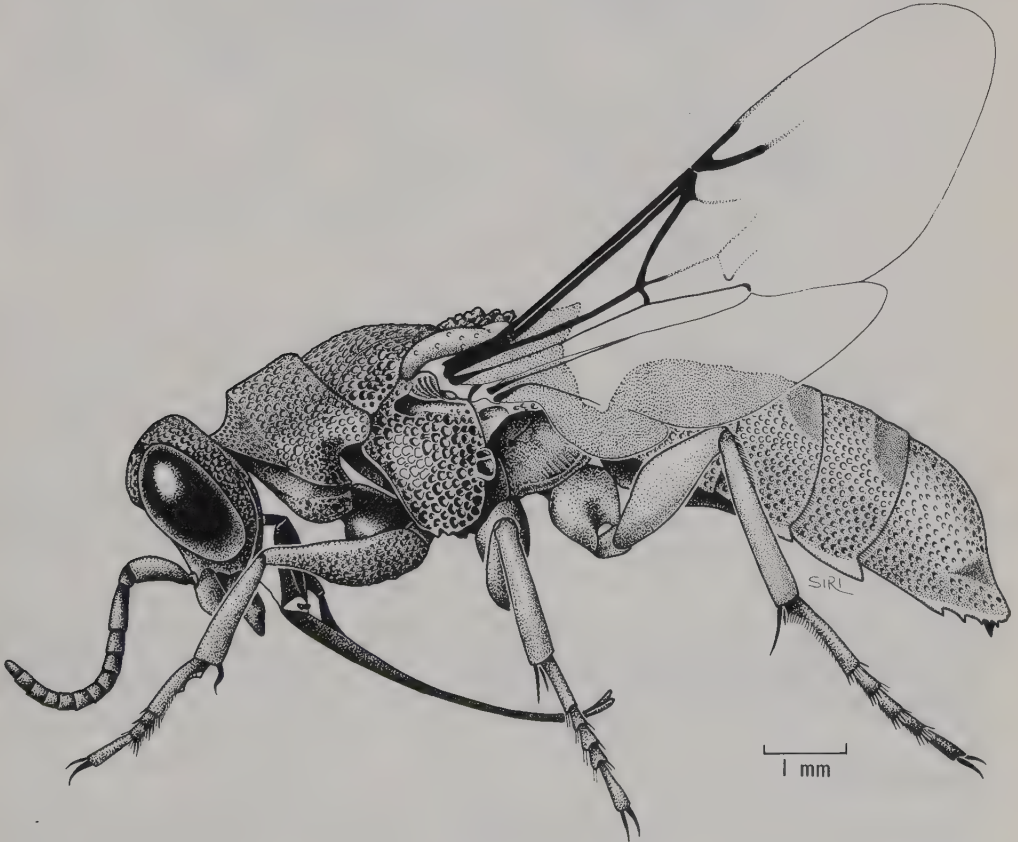


Fig. 155. *Parnopes grandior*, male.

(Fig. 155); tegula subovoid, colour variously metallic and non-metallic; metanotal projection large and mucronate, apically truncate and deeply notched or entire (Fig. 156f) (North American species) or trilobate (Fig. 156e) (*grandior* and *viridis* groups); propodeal angle broadly triangular and apically acute; fore femur without distinct ventral tooth; female fore tarsomeres may have rake spines (*grandior* group). Male terminalia (Fig. 156b): volsella reduced and membranous, not divided into digitus and cuspis, gonocoxa with articulated digitate gonostyle; aedeagus apically rounded, or with subapical hook or projection; S-VIII broad and subrectangular.

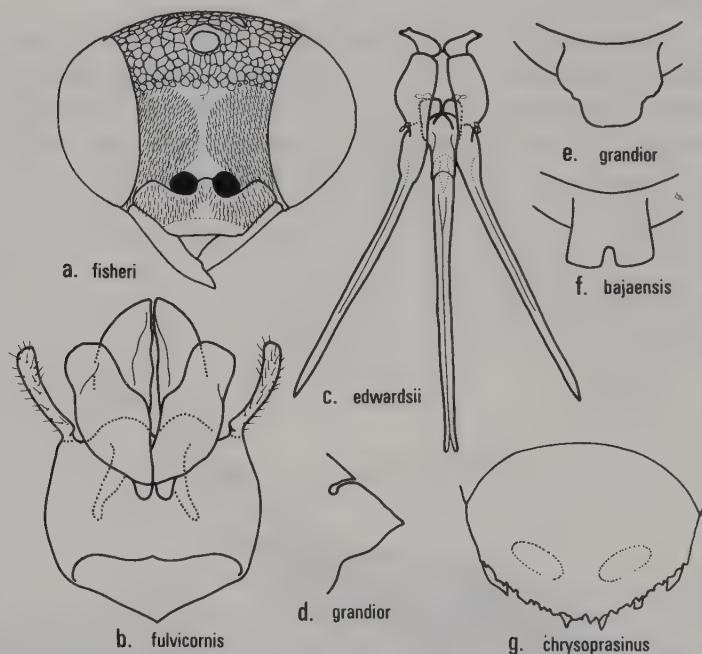


Fig. 156. *Parnopes* male. (a) face; (b) genital capsule, ventral; (c) tongue; (d) propodeal angle; (e) metanotal projection, dorsal and (g) T-III, apical rim.

## Hosts

*Parnopes* parasitize wasps in the sphecid tribe Bembicini. They have been reported from *Bembix*, *Steniolia*, and *Microbembex* (Evans 1970 G. Bohart and MacSwain 1940, Krombein 1958a, Grandi 1961, Mocsáry 1889).

## Distribution

This is primarily a Holarctic genus, with four species in the Palearctic Region and seven in the Nearctic. In addition, two species occur in India, two throughout Africa, and one in Madagascar.



## Discussion

*Parnopes* can be readily distinguished from *Isadelphia* and *Cephaloparnops* by the much reduced palpi and large metanotal projection. In addition, most *Parnopes* tend to be considerably larger than species in the other parnopine genera.

*Parnopes* readily divides into five distinct species groups, with the African and Palaearctic groups more closely related to each other than to the American groups. The American species were reviewed in detail by Telford (1964), and Bohart and Kimsey (1982), and the world species by Kimsey (1987b).

## KEY TO PARNOPES SPECIES GROUPS

1. Metanotal projection with apical margin truncate, deeply notched or entire (Fig. 156f); gena not angulate behind ocular margin in lateral view; Nearctic species 2  
Metanotal projection with apical margin strongly convex or trilobate (Fig. 156e); gena angulate behind ocular margin in lateral view (Fig. 155); Palaearctic, Afrotropical, and Oriental species 3

---

2. Entire scapal basin covered with dense, appressed silvery setae; fore femur without ventral carina *fulvicornis* group, p.583  
Scapal basin without dense, appressed silvery setae, or with only 2 small patches (*borregoensis*); fore femur with strong ventral carina *chrysoprasinus* group, p.583

---

3. Terga and tegula entirely bright metallic, with little or no non-metallic red or orange. *viridis* group, p.584  
Terga and usually tegula extensively non metallic red or orange *grandior* group, p.584

---

### *Parnopes chrysoprasinus* group

Members of this species group are all North American, and all but *chrysoprasinus* occur west of the 100th meridian. The tongue length is about twice the eye height in these species. In addition, the scapal basin is either bare or has only sparse or patchy silvery pubescence, the fore femur has a strong ventral carina and the metanotal projection is either apically entire or deeply notched medially. The terga are entirely metallic with occasional non-metallic redness apically or restricted off-white laterally. The tegulae are either entirely blue, green, or purple (*chrysoprasinus*, *edwardsii*), blue with a brown rim (*bajaensis*), or largely brown, off-white, or yellowish (*borregoensis*, *concinus*, *desertorum*). In addition, most species have off-white markings on the lateral propodeal angle, leg joints, posterolateral corners of T-I–II, and T-III in males, and basolaterally on the apical tergum.

*Parnopes fulvicornis* group

The *fulvicornis* group has only one widespread species, which occurs across the United States and in northern Mexico. Diagnostic features for this group are: the scapal basin entirely clothed with dense, appressed silvery setae; fore femur ventrally rounded and ecarinate; tongue about 2.5 times eye height; and the metanotal projection with posterior margin deeply notched. The terga are primarily metallic but in some specimens, particularly females, it may be quite red. The tegula is non-metallic red. An unusual colour form of *fulvicornis* occurs in coastal North Carolina; individuals are entirely dark purple. These wasps have been called subspecies *atlanticus* Krombein.

*Parnopes grandior* group

This group is characterized by the metanotal projection apical margin strongly convex or trilobate, female fore tarsomeres with rake spines, two or more terga non-metallic red, the gena angulate behind the ocular margin. The fore femur is ventrally carinate, at least basally. In addition, the tongue tends to be twice as long as the eye height or shorter. The extent of metallic coloration and the colour varies in this group, particularly in *grandior*. Most, if not all of the subspecies named for *grandior* are simply colour varieties, which lack even a geographic component. In *grandior* and *popovi* the basal and apical terga are metallic, although this does vary to some extent. The abdomen is entirely non-metallic red in the other species. Females tend to be redder than males throughout the genus.

Members of the *grandior* group are primarily Palaearctic, with one Oriental species in India.

*Parnopes viridis* group

The *viridis* group includes all *Parnopes* of the Afrotropical Region, and one, *viridis*, in Oriental India. These species are distinguished from those in the *grandior* group by having the entire body brightly metallic, including the tegula and terga. Otherwise they share a number of characteristics with the *grandior* group, including the angulate gena, trilobate metanotal projection, ventrally carinate fore femur, and similar tongue length. Although most individuals in the *viridis* group are bright green, some tend to be partly bluish, or, particularly in southern Africa, quite brassy or coppery.

Checklist of *Parnopes*


---

*bajaensis* Kimsey. Nearctic: n Mexico (Baja California).

*bajaensis* Kimsey 1987b:87. Holotype male; Mexico: Baja California, 13 mi sw La Purisima (DAVIS). (*chrysoprasinus* group).\*

*borregoensis* Telford. Nearctic: w USA (California).

*borregoensis* Telford 1964:9. Holotype male; USA: California, San Diego Co., Borrego Valley (SAN FRANCISCO). (*chrysoprasinus* group).\*

*chrysoprasinus* Smith. Nearctic: e USA.

*chrysoprasinus* Smith 1874b:456. Holotype male; USA: North Carolina (LONDON). (*chrysoprasinus* group).\*

*aglaspidulus* Melander and Brues 1902:38. Lectotype female (desig. Kimsey herein); USA: Illinois, Chicago (WASHINGTON).\*

*concinus* Viereck. Nearctic: w and sw USA, nw Mexico.

*concinus* Viereck 1904:248. Holotype female; USA: Arizona, Florence (PHILADELPHIA). (*chrysoprasinus* group).\*

*arizonensis* Viereck 1904:249. Holotype male; USA: Arizona, Florence (PHILADELPHIA).\*

*digueti* Buysson 1904:274. Holotype male; Mexico: Jalisco, Guadalajara (PARIS).\*

*desertorum* Kimsey. Nearctic: sw USA.

*festivus* Cockerell 1894b:328. Holotype female; USA: New Mexico, Las Cruces (WASHINGTON). Nec Fabricius 1793.\*

*desertorum* Kimsey 1987b:89. Repl. name for *festivus* Cockerell 1894b. (*chrysoprasinus* group).

*edwardsii* (Cresson). Nearctic: w USA, sw Canada, Mexico (Baja California).

*edwardsii* (Cresson) 1879:4. (*Euchroeus*). Holotype female; USA: California (PHILADELPHIA). (*chrysoprasinus* group).\*

*boutheryi* Brèthes 1903:287. Syntypes; USA: Nevada (Argentina, in error) (BUENOS AIRES).\*

*hageni* Viereck 1904:246. Holotype female; USA: Washington, Yakima (CAMBRIDGE).\*

*benshawi* Viereck 1904:246. Holotype female; USA: Oregon, Umatilla (CAMBRIDGE).\*

*festivus* (Fabricius). Afrotropical: widespread.

*festivus* (Fabricius) 1793:239. (*Chrysis*). Holotype female; 'Guinea' (COPENHAGEN). (*viridis* group).\*

*smaragdina* Smith 1874b:453. Holotype female; 'The Gambia, Senegambia' (LONDON).\*

*fisheri* Spinola. Afrotropical: widespread, Palaearctic: Egypt.

*fisheri* Spinola 1838:455. Holotype female; Egypt (TURIN ?). (*viridis* group).

*apicalis* Walker 1871:6. Lectotype male (desig. Kimsey 1986c); Egypt (LONDON).\*

*fulvicornis* Cameron. Nearctic. USA (widespread), S Canada, Neotropical: Mexico to Guatemala.

*fulvicornis* Cameron 1888:466. Holotype female; Mexico: Presidio (LONDON). (*fulvicornis* group).\*

*westcottii* Melander and Brues 1902:39. Lectotype male (desig. Kimsey herein); USA: California (PULLMAN).\*

*diadema* Viereck 1904:245. Holotype female; USA: Arizona, Florence (PHILADELPHIA).\*

*taeniatus* Viereck 1904:249. Holotype female; e Washington (PHILADELPHIA).\*

*excurvatus* Viereck 1904:250. Holotype male (not female); USA: Arizona, Florence (PHILADELPHIA). N. synonymy.\*

- atlanticus* Krombein 1958a:164. (*westcottii* ssp.). Holotype female; USA: North Carolina; Dare Co., Kill Devil Hills (WASHINGTON).\*\*
- glasunowi* Semenov. Palaearctic: s USSR.
- glasunowi* Semenov 1901:25. Holotype male; USSR: 'Turkestan Occid., Jagnob, Rovat' (LENINGRAD). (*grandior* group).\*
- grandior* (Pallas). Palaearctic: Europe, North Africa, w USSR.
- grandior* (Pallas) 1771:474. (*Chrysis*). Holotype male; Russian SFSR (BERLIN). (*grandior* group).\*
- carnea* (Fabricius) 1775:357. (*Chrysis*). Holotype; Italy (COPENHAGEN).
- anomala* (Block) 1799:106. (*Chrysis*). Holotype female; Germany: Plau Valley (Mus. ?).
- episcopalis* (Block) 1799:106. (*Chrysis*). Holotype male; Germany: Plau Valley (Mus. ?).  
N. synonymy.
- doursi* (Siebel) (in Dours) 1874:118. (*Chrysis*). Type ?; France (PARIS ?).
- caspicus* Mocsáry 1889:615. (*grandior* var.). Holotype male; USSR: 'Cas̑pia' (KRAKOW ?).
- fasciatus* Mocsáry 1889:615. (*grandior* var.). Lectotype male (desig. Móczár 1964b); Hungary: 'Isazeg' (BUDAPEST).\*
- intermedius* Müller 1909:732. (*grandior* var.). Holotype male; Russian SFSR (BERLIN).\*
- iris* Müller 1909:732 (*grandior* var.). Holotype male; Netherlands: Bremen (BERLIN).\*
- semiviolaceus* Semenov 1912:180. (*grandior* var.). Lectotype male (desig. Kimsey herein); Russian SFSR: Siberia, Semipalatinsk (LENINGRAD).\*
- charon* Trautmann and Trautmann 1919:33. (*grandior* var.). Syntype male, female; Germany: Furth (BERLIN ?).
- viridifulgens* Müller 1941:7. (*grandior* var.). Type ? (Mus. ?).
- turkestanicus* Semenov 1954a:135. (*grandior* ssp.). Holotype female; Kazakh SSR: Balamurun, Karatau (LENINGRAD).\*
- jemenensis* Linsenmaier 1987:156. (*grandior* ssp.). Holotype female; Yemen: Wadi Tiban (LUZERN). N. synonymy.
- indicus* Linsenmaier. Oriental: India.
- indicus* Linsenmaier 1968:124. Holotype male; India (LONDON). (*grandior* group).
- madecassus* Saussure Afrotropical: Madagascar.
- madecassus* Saussure 1887:26. Holotype male; Madagascar (Mus. ?). (*viridis* group).
- imberbus* Buysson 1906b:112. Holotype female; Madagascar: Tamatave (PARIS).\*
- popovii* Eversmann. Palaearctic: China, Mongolia, se USSR, Korea.
- popovii* Eversmann 1857:567. Holotype; Russian SFSR: Siberia, Kiachta (KRAKOW ?). (*grandior* group).
- sinensis* Smith 1874b:454. Holotype male; China: Shanghai (LONDON).\*
- unicolor* Gribodo. Palaearctic: Algeria.
- unicolor* Gribodo 1879:338. (*carnea* var.). Holotype male; Algeria (GENOA ?). (*grandior* group).



*viridis* Brullé. Oriental: India.

*viridis* Brullé 1846:13. Holotype male; India; Pondicherry (PARIS ?). (*viridis* group).

*cupreiventris* (Cameron) 1902b:423. (*Euchroeus*). Holotype female; India: Deesa (LONDON).\*

---

---

# BIBLIOGRAPHY

---

- Aaron, S. F. (1885). The North American Chrysididae. *Trans. Amer. ent. Soc.* 12 209-48.
- Abeille de Perrin, E. (1877). Diagnoses d'espèces nouvelles et remarques sur des espèces rares. *Feu. Jeunes Nat.* 78 65-8.
- Abeille de Perrin, E. (1878). Diagnoses de chrysidés nouvelles. Published by author, 6pp. Marseille.
- Abeille de Perrin, E. (1879). Synopsis critique et synonymique des chrysidés de France. *Ann. Soc. Linnéenne, Lyon (n. ser.)* 26 1-108.
- Abeille de Perrin, E. (1881). no title. *Bull. Soc. Hist. Nat. Toulouse* 13 156-63.
- Agassiz, A. (1846). *Nomenclator zoologicus, fasc. 12 index*, viii + 393pp. Jent et Gassmann, Soloduri.
- Alfken, J.D. (1915). Verzeichnis der Goldwespen (Chrysiden) Nordwest-deutschlands. *Abb. Ver Bremen* 23 291-5.
- André, Ed. (1891-1901). Species des Hyménoptères d'Europe and Algérie. Tome sixième par R. du Buysson. 758 pp. + 1-22, 32 plates. Duboscq, Paris.
- Ashmead, A.M. 1902. Classification of the fossorial, predaceous and parasitic wasps, or the superfamily Vespoidea. *Canad. Ent.* 34 219-231.
- Ashmead, A.M. (1904). A new genus and some new species of Hymenoptera from the Philippine islands. *Canad. Ent.* 36 281-5.
- Balthasar, V. (1943). Opuscula hymenopterologica, IV. *Ent. Listy* 6 33-51.
- Balthasar, V. (1944). Opuscula hymenopterologica, V. *Ent. Listy* 7 28-30.
- Balthasar, V. (1946). Prodrómus hymenopterorum czechoslovakiae. Pars. viii. Prodrómus chrysididarum rei publicae czechoslovakiae. *Acta Ent. Mus. Nat. Prague* 24 223-60.
- Balthasar, V. (1949). Les nouvelles chrysidides de l'Europe centrale et meridionale. Opus. hymen., viii. *Acta Ent. Mus. Nat. Prague* 26 1-5.
- Balthasar, V. (1953 (1951)). Monographie des chrysidides de Palestine et des pays limitrophes. *Acta Ent. Mus. Nat. Prague* 27 (suppl. 2) 1-317.
- Balthasar, V. (1954a (1952)). Ein Beitrag zur Kenntnis der Sphegiden und Chrysididen der Insel Cypern. *Acta Ent. Mus. Nat. Prague* 28 (398) 39-56.
- Balthasar, V. (1954b (1952)). Wissenschaftliche Ergebnisse der zoologischen Expedition des National-Museum in Prag nach der Türkei, 11. Hymenoptera III, Chrysididae. *Acta Ent. Mus. Nat. Prague* 28 71-6.
- Balthasar, V. (1957 (1956)). Neue chrysididen aus Afghanistan. *Acta Soc. ent. Cech.* 53 143-53.
- Benoist, R. (1942). Les Hyménoptères qui habitent les tiges de nonne aux environs de Quito (Equateur). *Ann. Ent. Soc. France* 111 75-90.
- Benoit, P. L. G. (1951). Alieniscidae nomen novum pro Alienidae Bridwell. *Bull. Ann. Soc. Ent. Belg., Brussels* 87 90-2.

- Berland, L. and Bernard F. (1938). Faune de France, 34. Hyménoptères Vespiformes. III, Cleptidae, Chrysididae, Trigonalidae. vii+145pp. Paul Lechevalier, Paris.
- Bingham, C. T. (1898). On some new species of Indian Hymenoptera. *J. Bombay Soc.* 12 115-30.
- Bingham, C. T. (1903). In *The fauna of British India, including Ceylon and Burma. Hymenoptera, Vol. III. Ants and cuckoo-wasps*, (ed. W.T. Blandford), xix + 506 pp. Published under the authority of the Secretary of State for India in Council, London.
- Bischoff, H. (1910). Die Chrysididen des Königlischen Zoologischen Museums zu Berlin. *Mitt. Zool. Mus., Berlin* 4 427-93.
- Bischoff, H. (1913). Hymenoptera: Chrysididae. *Genera insectorum* 151 1-86. P. Wytsman, Bruxelles.
- Bischoff, H. (1930). Entomologische Ergebnisse der Deutsch- Russischen Alai-Pamir-Expedition 1928 (I). 3. Hymenoptera. *Mitt. Zool. Mus., Berlin* 16 215-25.
- Bischoff, H. (1935). In Beitrag zur kenntniss der Hymenopterenfauna Marokko und Westalgerien. Zweiter Teil: Scoliididae, Tiphiidae, Mutillidae, Psammocharidae, Chrysididae, (ed. V. Ad. Nadig). *Jahres. Naturf. Ges. Graubundens (n. s.)* 73 3-21.
- Blanchard, C. E. (1840). *Histoire naturelle des Insectes etc.*, Vol. 3, Tom. III, 622pp. Chrysidides, pp. 294-8 P. Duménil, Paris.
- Block, L. H. F., von. (1799). In *Plauische Grunde bei Dresden, mit Hinsicht auf Naturegeschichte und Schöne Gartenkunst*, (ed. W. G. Becker), Part 2, Section III, 120 pp. Nurnberg.
- Bodenstein, W. G. (1939a). A new *Holopyga* from the western United States. *Ent. News* 50 19-21.
- Bodenstein, W. G. (1939b). The genotypes of the Chrysididae. *Trans. Amer. Ent. Soc.* 65:123-33.
- Bodenstein, W. G. (1951). Superfamily Chryridoidea, In *Hymenoptera of America north of Mexico, synoptic catalogue* (ed. C. F. W. Muesebeck et al.) pp. 718-26. US Government Printing Office, Washington, D.C.
- Boettger, O. (1881). Sectiones speciesque novae Clausiliarum Caucasiarum. *Jahrb. dtsh. malak. Ges.* 8 341-6.
- Bohart, G. E. and MacSwain, J. W. (1940). Notes on two chrysidids parasitic on western bembicid wasps. *Pan-Pac. Ent.* 16 92-3.
- Bohart, R. M. 1962. A review of the hexadentate species of *Chrysis* of America north of Mexico. *Acta Hymenopterologica* 1 361-75.
- Bohart, R. M. (1964). New species of *Chrysis* in the *lauta*, *propria* and *venusta* groups from North America. *Proc. Biol. Soc. Wash.* 77 223-36.
- Bohart, R. M. (1966a). New species of *Ceratochrysis* from North America. *J. Kansas Ent. Soc.* 39 112-23.
- Bohart, R. M. (1966b (1963)). The genus *Neochrysis* in America north of Mexico. *Bull. Brooklyn Ent. Soc.* 58 139-44.
- Bohart, R. M. (1966c). New species of cuckoo wasps bred from twigs in western North America. *Proc. Biol. Soc. Wash.* 79 131-4.
- Bohart, R. M. (1978). See Bohart and Kimsey (1978).

- Bohart, R. M. (1980). New genera and species of North American Chrysididae. *J. Kansas Ent. Soc.* 53 132-6.
- Bohart, R. M. (1982). See Bohart and Kimsey (1982).
- Bohart, R. M. (1985a). A key to the Australian *Chrysis* with descriptions of new species. *Ins. Mundi* 1 47-52.
- Bohart, R. M. (1985b). The *Chrysis gibba* species group in the new world. *Ins. Mundi* 1 91-7.
- Bohart, R. M. (1985c). New *Ipsiura* and a key to known species of the genus. *J. Kansas Ent. Soc.* 58 708-720.
- Bohart, R. M. (1986a). *Praestochrysis* of the Ethiopian Region. *Ins. Mundi* 1(3) 148-54.
- Bohart, R. M. (1986b). See Bohart and French (1986).
- Bohart, R. M. (1987a). New *Praestochrysis* and notes on described species from the Oriental Region. *Psyche* 94 45-50.
- Bohart, R. M. (1987b). A key to the species of *Spintharina* with descriptions of new species and indication of species groups. *Psyche* 94 93-102.
- Bohart, R. M. (1988a). A key to *Trichrysis* and new species from Sri Lanka and Africa. *Pan-Pac. Ent.* 63 347-52.
- Bohart, R. M. (1988b). A key to species of the genus *Primeuchroeus* and descriptions of new species. *Ins. Mundi* 2 21-7.
- Bohart, R. M. (1988c). New species of *Chrysidea* and a key to the Madagascan species. *J. Ent. Soc. S. Afr.* 51 129-37.
- Bohart, R. M. (1988d). New species of African *Chrysis*. *Psyche* 94 275-92.
- Bohart, R. M. and Brumley R. L. (1967). Two new species of *Hedychridium* from California. *Pan-Pac. Ent.* 43 232-35.
- Bohart, R. M. and Campos, L. E. (1960). A review of the genus *Omalus* Panzer in North America. *Ann. Ent. Soc. Amer.* 53 235-50.
- Bohart, R. M. and French, L. D. (1986). Designation of chrysidid lectotypes in the Mocsáry collection at the Hungarian National Museum, Budapest. *Pan-Pac. Ent.* 62 340-3.
- Bohart, R. M. and Kimsey, L. S. (1978). A revision of the New World species of *Hedychridium*. *Proc. Biol. Soc. Wash.* 91 590-635.
- Bohart, R. M. and Kimsey L. S. (1982). A synopsis of the Chrysididae in America north of Mexico. *Mem. Amer. Ent. Inst.* 33 1-266.
- Bohart, R. M. and MacLaughlin J. (1979). Evidence indicating *Ammophila* as host of *Spintharosoma*. *Pan-Pac. Ent.* 54 310.
- Bohart, R. M. and Menke, A. S. (1976). *Sphecid wasps of the world*. ix + 695 pp. University of California Press, Berkeley.
- Bordage, E. (1913). Notes biologiques recueillies a l'île de la Reunion. *Bul. Sci. France Belg.* 47 377-412.
- Brauns, H. (1903). Ein neues Chrysiden-Genus aus der *Parnopes*-Gruppe. *Ann. Mus. Hung.* 1 460-1.
- Brauns, H. (1928). Beitrag zur Kenntnis afrikanischer Chrysididen. *Ent. Mitt., Berlin* 17 383-93.



- Brèthes, J. (1903 (1902)). Contributions l'étude des Hyménoptères de l'Amérique du Sud et spécialement de la République Argentine: les Chrysidides. *An. Mus. Nac. Buenos Aires* (3)1 263-94.
- Brèthes, J. (1908 (1906)). Himenópteros sudamericanos. *An. Mus. Nac. Buenos Aires* (3)9 1-13, 45-7.
- Bridwell, J. C. (1919). Some notes on Hawaiian and other Bethyridae with descriptions of new species. *Proc. Hawaiian Ent. Soc.* 4 35-8.
- Brothers, D. J. (1975). Phylogeny and classification of the aculeate Hymenoptera, with special reference to the Mutillidae. *Univ. Kansas Sci. Bull.* 50 483-648.
- Brown, R. E. (1906). A catalogue of Philippine Hymenoptera, with descriptions of new species. *Philippine J. Sci. Manila* 1 683-95.
- Brues, C. T. (1914). The bethylid genus *Mesitius* in South America. *Ent. News* 25 119-120.
- Brues, C. T. (1933). The parasitic Hymenoptera of the Baltic amber. *Bernstein Forsch.* 3 4-178.
- Brullé, A. (1833). *Expedition scientifique de Moreé. Vol. 3, Insectes*, pp. 326-95. Levrault, Strasbourg.
- Brullé, A. (1846). In *Histoire naturelle des insectes. Hyménoptères*. (ed. A. L. Lepeletier de Saint-Fargeau), Vol. 4, 680 pp. Roret, Paris.
- Buysson, R. du. (1886). Description d'une nouvelle espece de chryside. *Rev. Ent. (Caen)* 5 151.
- Buysson, R. du. (1887a). Chrysidides inédites. *Rev. Ent. (Caen)* 6 6-8.
- Buysson, R. du. (1887b). Descriptions de Chrysidides nouvelles. *Rev. Ent. (Caen)* 6 167-201.
- Buysson, R. du. (1888). Descriptions de Chrysidides nouvelles. *Rev. Ent. (Caen)* 7 1-13.
- Buysson, R. du. (1890a). Trois diagnoses inédites de *Chrysis*. *Ann. Soc. Ent. France* 1890:133-4.
- Buysson, R. du. (1890b). In *Imenotteri di Siria, raccolti dall'avv to Augusto Medana, con descrizione di alcune speci nuove*, (ed. P. Magretti) *Ann. Mus. Civ. Stor. Nat., Genova Ser.* (2)9 522-48.
- Buysson, R. du. (1891). Contribution aux Chrysidides du globe. *Rev. Ent. (Caen)* 10 29-47.
- Buysson, R. du. (1892-1906). In *Species des hyménoptères d'Europe et d'Algerie*. (ed. E. André), Fase. 41, ix + 751 + 22 pp. + 32 pl. Gray, Paris.
- Buysson, R. du. (1893). Contribution aux Chrysidides du globe. *Rev. Ent. France* (2)12 245-52.
- Buysson, R. du. (1895). Catalogue méthodique des chrysidides de France. *Rev. Sci. Bourbonnais* 8 1-36.
- Buysson, R. du. (1896). Première contribution a la connaissance des Chrysidides de l'Inde. *J. Bombay Soc.* 10 462-81.
- Buysson, R. du. (1898a). Contribution aux Chrysidides du globe. *Rev. Ent. (Caen)* 17 125-47.
- Buysson, R. du. (1898b (1897)). Etude des Chrysidides du Muséum de Paris. *Ann. Ent. Soc. France* 66 518-80.
- Buysson, R. du. (1898c). Description d'une *Chrysis* nouvelle de Djibouti. *Bull. Soc. Ent. France* 1898 271-2.
- Buysson, R. du. (1899). Catalogue des insectes Hyménoptères de la famille des chrysidides du Muséum de Paris. *Bull. Mus. Nat. Hist. Paris* 1899, 159-69.
- Buysson, R. du. (1900). Contribution aux Chrysidides du globe. *Rev. Ent. France* (4) 19, 125-58.

- Buysson, R. du. (1901). Sur quelques Chrysidides du Musée de Vienne. *Ann. Naturhist. Hofmus. Wien* 16 97–104.
- Buysson, R. du. (1903*a*). Hyménoptères nouveaux du Congo. *Bull. Mus. Paris* 8 599–601.
- Buysson, R. du. (1903*b*). Hyménoptères recoltés au Japon par M. J. Harmand. *Bull. Mus. Paris* 9 125–7.
- Buysson, R. du. (1903*c*). Chrysidides recoltés par M.G.A. Baer dans l'Amérique du Sud. *Bull. Mus. Paris* 9 311.
- Buysson, R. du. (1904). Contribution aux Chrysidides du globe. *Rev. Ent. (Caen)* 23 253–75.
- Buysson, R. du. (1905). Note Hyménopterologique. *Ann. Mus. Zool. Univ. Napoli* 2 (2):1–2.
- Buysson, R. du. (1906*a*). Voyage de M. A. C. Jensen-Haarup dans la région de Mendoza. Hyménoptères. *Ent. forening, Copenhagen* (2)3, 17–20.
- Buysson, R. du. (1906*b*). Hyménoptères nouveau. *Rev. Ent. (Caen)* 25 103–219.
- Buysson, R. du. (1907). Chrysidide nouvelle. *Bull. Ent. Soc. Paris* 1907 138.
- Buysson, R. du. (1908*a*). Revision des chrysidides de l'Égypte. *Mem. Soc. Ent. Egypt* 1 1–99.
- Buysson, R. du. (1908*b*). Deux Hyménoptères nouveau de Java. *Notes Leiden Mus.* 30 123–6.
- Buysson, R. du. (1908*c*). Hyménoptères nouveau. *Rev. Ent. (Caen)* 27 207–19.
- Buysson, R. du. (1909). Hyménoptères Chrysidides de la région de Mendoza. *Ent. forening, Copenhagen* 3(2) 195–200.
- Buysson, R. du. (1910*a*). Les Chrysidides de Madagascar. *Rev. Ent. (Caen)* 28 123–34.
- Buysson, R. du. (1910*b*). Hyménoptères nouveaux ou peu connus. *Rev. Ent. (Caen)* 28 172–79.
- Buysson, R. du. (1911). Hyménoptères nouveaux du Maroc. *Bull. Mus. Hist. Nat. Paris* 17 408–9.
- Buysson, R. du. (1913). Hyménoptères, etc. In *Arc de méridien équatorial en Amérique du Sud, 1899–1900, Vol. 10. Entomologie Botanique* Fasc. 1, Hyménoptères pp. 5–12. Gauthier-Villars, Paris.
- Byers, G. W. (1978). Nests, prey, behavior and development of *Cerceris halone*. *J. Kansas Ent. Soc.* 51 818–31.
- Cameron, P. (1887). Descriptions of one new genus and some new species of parasitic Hymenoptera. *Proc. Manchester Lit. Phil. Soc.* 26 7–11.
- Cameron, P. (1888). Family Chrysididae. In *Biologia Centrali-Americana, 1883–1900. Hymenoptera* 1 1–487. Tayler and Francis, London.
- Cameron, P. (1897*a*). Hymenoptera orientalia, or contributions to a knowledge of the Hymenoptera of the Oriental Zoological Region. VI. *Mem. Proc. Manchester Lit. Phil. Soc.* 41 1–27.
- Cameron, P. (1897*b*). New species of Hymenoptera from Central America. *Ann. Mag. Nat. Hist.* (9) 261–76.
- Cameron, P. (1901). On the Hymenoptera collected in New Britain by Dr. Arthur Willey. *Proc. Zool. Soc. Lond.* 1901 234–4.
- Cameron, P. (1902*a*). On some new genera and species of Hymenoptera. *Entomologist* 35 206–8.
- Cameron, P. (1902*b*). Descriptions of new genera and species of Hymenoptera collected by Major C. S. Nurse. *J. Bombay Soc.* 14:419–49.
- Cameron, P. (1903). On the parasitic Hymenoptera and Tenthredinidae collected by Mr.

- Edward Whympers on the 'great Andes of the equator'. *Entomologist* 36 158-61.
- Cameron, P. (1906a). *Hymenoptera I. Nova Guinea*. 5 (Zool.) 41-65. E.J. Brill, Leiden.
- Cameron, P. (1906b). On the Hymenoptera of the Albany Museum, Grahamstown, Cape Colony. *Albany Mus. Rec.* 412-17.
- Cameron, P. (1908). Descriptions of two new species of Chrysididae from Borneo. *Entomologist* 41 61-2.
- Cameron, P. (1910a). Description of a new genus and species of *Oxyura* from Kuching, Borneo. *Entomologist* 43 22-3.
- Cameron, P. (1910b). Chrysididae. In *Dem Kilimandjaro, Dem Meru* ed. Y. Sjöstedt 2:297-99. P. Palmquists, Stockholm.
- Carpenter, J. M. (1986). Cladistics of the Chrysidoidea. *J. New York Ent. Soc.* 94 303-30.
- Carrillo S., J. L. and Caltagirone, L. E. (1970). Observations on the biology of *Solierella peckhami*, *S. blaisdelli* and two species of Chrysididae. *Ann. Ent. Soc. Amer.* 63 673-81.
- Chevrier, F. (1862). Description des Chrysidés du bassin du Léman. *Mitt. Schweiz. Ent. Ges.* 1:1-134.
- Chevrier, F. (1869). Description de deux Chrysidés du bassin du Léman. *Mitt. Schweiz. Ent. Ges.* 2 44-48.
- Chevrier, F. (1870). Description de quelques Hyménoptères du Bassin du Léman. *Mitt. Schweiz. Ent. Ges.* 3 265-76.
- Christ, J. L. (1791). *Naturgeschichte, classification und Nomenclatur der Insecten von Bienen, Vespen und Ameisengeschlecht*, 535 pp. (Einteilung der Arten von Goldwespen, pp. 397-406). Hermannischen Buchhandlung, Frankfurt am Main.
- Clausen, C. P. (1940). *Entomophagous insects*, 688 pp. Hafner Pub. Co., New York.
- Cockerell, T. D. A. (1894a). Description of a new *Chrysis*. *Ent. News* 5 125.
- Cockerell, T. D. A. (1894b). Descriptions of new Hymenoptera. *Ent. News* 5 328-9.
- Cockerell, T. D. A. (1896). VII. Some new insects. *Psyche* (Suppl.) 7 15-17.
- Cockerell, T. D. A. (1897 (1896?)). Contributions from the New Mexico Biological Station, V. Some new Hymenoptera from the Mesilla Valley, New Mexico. *Ann. Mag. Nat. Hist.* (6) 19 394-403.
- Cockerell, T. D. A. (1903). *Euthrips* and *Hedychridium* in New Mexico. *Canad. Ent.* 35 262.
- Cockerell, T. D. A. (1907). Some fossil arthropods from Florissant, Colorado. *Bull. Amer. Mus.* 23 605-16.
- Cockerell, T. D. A. (1927). Hymenoptera from Lucban, Philippine Islands. *Philippine J. Sci.* 33 271-7.
- Cooper, K. W. (1952). A remarkable new species and subgenus of chrysidid wasp from North America. *Trans. Amer. Ent. Soc.* 78 137-48.
- Coquebert de Mombret, A. J. (1801). *Iconographica Insectorum, quae in Musaeis Parisinis observavit et in lucem edidit Joh. Christ. Fabricius*, pp. 58-61. Decades, Paris.
- Costa, A. (1858). *Ricerche entomologiche sopra i Monti Partenii*. 29 pp., 1 pl. V. F. Pignacera, Napoli.
- Costa, A. (1864). Descriptions of some insects foreign to Europe. *Ann. Mus. Zool. Napoli, Anno* 2, 1862 67-8.

- Costa, A. (1864). *Annuario Mus. Zool. Univ. Napoli* anno II, 1862; 67–8.
- Costa Lima, A. da. (1936). Sur un nouveau Chryside: *Duckeia cyanea*, parasite des oeufs de Phasmide. *Livre Jubilaire E.-L. Bouvier* 1936:173–175. Instituto Oswaldo Cruz, Rio de Janeiro.
- Courtiller, A. (1859 (1858)). Descriptions des chrysidés observées aux environs de Saumur. *Ann. Soc. Linn. Maine-Loire* 3 61–72.
- Coville, R. E. (1981). Biological observations on three *Trypoxylon* wasps in the subgenus *Trypargilum* from Costa Rica: *T. nitidum schultzei*, *T. saussurei*, and *T. lacteitarse*. *Pan-Pac. Ent.* 57:332–40.
- Cresson, E. T. (1865a). On the Hymenoptera of Cuba. *Proc. Ent. Soc. Philad.* 4 103–110.
- Cresson, E. T. (1865b). Catalogue of Hymenoptera in the collection of the Entomological Society of Philadelphia from Colorado Territory. *Proc. Ent. Soc. Philad.* 4 242–313.
- Cresson, E. T. (1879). Four new species of Hymenoptera. *Monthly Proceedings. Trans. Amer. Ent. Soc.* 7:iv.
- Cresson, E. T. (1916). The Cresson types of Hymenoptera. *Mem. Amer. Ent. Soc.* 1:1–141.
- Cresson, E. T. (1928 (posthumous)). The types of Hymenoptera in the Academy of Natural Sciences of Philadelphia other than those of Ezra T. Cresson. *Mem. Amer. Ent. Soc.* (5) 1–90.
- Curtis, J. (1824). *British entomology; being illustrations and descriptions of the genera of insects found in Great Britain and Ireland*. Vol. 4, *Hymenoptera* pt. 2. No pagination, privately publ. by author, London.
- Dahlbom, A. G. (1829). *Monographia chrysidum Sueciae*. 19 pp. Paul Genberg, London.
- Dahlbom, A. G. (1831). *Monographia Chrysididum Sueciae*. In *Acad. Carol. Audit. Hist. Nat.*, II–IV 19–54.
- Dahlbom, A. G. (1845). *Dispositio methodica specierum Hymenopterorum, secundum Insectorum naturales*, 20 pp. Berlingianis, Lund.
- Dahlbom, A. G. (1850). Syd-Africanska Chrysidés. *Oefversigt K. Vet. Acad. Förhandl.* 7:135–142.
- Dahlbom, A. G. (1854). *Hymenoptera Europea praecipue borealia etc.* Vol. 2, xxiii + 411 pp. Lundbergiana, Lund.
- Dahlsten, D. L. (1961). Life history of a pine sawfly, *Neodiprion* sp., at Willits, California. *Canad. Ent.* 93 182–95.
- Dahlsten, D. L. (1967). Preliminary life tables for the pine sawflies in the *Neodiprion fulviceps* complex. *Ecology* 48 275–89.
- Dalla Torre, C. G. (1892). Chrysididae. *Catalogus Hymenopterorum* 6 1–118.
- Dalla Torre, K. W. von (1897). Zur Nomenclatur der Chalcididen—Genera. *Wien Ent Ztg.* 16 83–8.
- Dalman, J. W. (1823). *Analecta entomologica*. 104 pp. Lindhianis, Holmiae.
- Darling, D. C. and Smith, D. R. (1985). Description and life history of a new species of *Nematus* on *Robinia hispida* in New York. *Proc. Ent. Soc. Wash.* 87 225–30.
- Day, M. C. (1978 (1979)). The affinities of *Loboscelidia* Westwood. *Syst. Ent.* 4 21–30.
- Day, M. C. and Fitton, M. G. (1977). Discovery in the Linnaean collection of type-material of insects described by J. R. Förster, with notes on the Hymenoptera. *Biol. J. Linn. Soc.* 9



31-43.

- Dejean, P. C. (1834). *Catalogue des Coléoptères de la collection de M. le comte Dejean*. Lief 3, pp. 177-256. Mequignon - Marvis, Paris.
- De-Stefani, T. (1888). Note sulle Chrysididi. *Nat. Siciliano* 7:88-95, 114-25, 139-45, 156-61, 177-82, 215-24, 237-44, 273-91.
- Donovan, E. (1800). *Epitome of the natural history of the insects of India etc.* 1800-1803. Privately publ. by author, London.
- Ducke, A. (1901). Beiträge zur kenntnis der geographischen Verbreitung der Chrysididen und Beschreibung von drei neuen Arten. *Zs. Syst. hymen. dipt.* 1 353-61.
- Ducke, A. (1902a). Eine neue südamerikanische *Cleptes*- Art. *Zs. Syst. Hymen. Dipt.* 2 91-3.
- Ducke, A. (1902b). Neue südamerikanische Chrysididen. *Zs. Syst. Hymen. Dipt.* 2 97-104.
- Ducke, A. (1902c). Ein wenig bekanntes Chrysididengenue *Amisega* Cam. *Zs. Syst. hymen. Dipt.* 2 141-4.
- Ducke, A. (1902d). Neue Goldwespen von Pará. *Zs. Syst. Hymen. Dipt.* 2 204-7.
- Ducke, A. (1903). Neue südamerikanische Chrysididen. *Zs. Syst. Hymen. Dipt.* 3 129-36, 226-32.
- Ducke, A. (1904). Revisione dei Chrysididi dello stato Brasiliano del Pará. *Bol. Soc. Ent. Italia., Florence* 36 13-48.
- Ducke, A. (1905). Supplemento alla revisione dei Crisididi dello stato brasiliano del Pará. *Bol. Soc. Ent. Italia* 36 99-109.
- Ducke, A. (1906). Alla revisione dei Chrysididi dello stato Brasiliano del Pará (second suppl.). *Bol. Soc. Ent. Italia, Florence* 38 3-19.
- Ducke, A. (1908a (1907)). Contribution a la connaissance de la faune Hyménoptérologique du nord-est du Brésil. *Rev. Ent. (Caen)* 26 73-96.
- Ducke, A. (1908b). Contribution a la connaissance de Hyménoptères des deux Amériques. *Rev. Ent. (Caen)* 27 28-55.
- Ducke, A. (1911 (1909)). Alla revisione dei chrysididi dello stato Brasiliano del Pará (third suppl.). *Bol. Soc. Ent. Ital.* 41 89-115.
- Ducke, A. (1913). As Chrysididas do Brazil. In *Catalogos da fauna Brasileira*, Vol. 4, pp. 1-31. Mus. Paulista, São Paulo.
- Dufour, L. and Perris, E. (1840). Mémoire sur les insectes Hyménoptères qui nichent dans l'intérieur des tiges seches de la Ronce. *Ann. Soc. Ent. France* 9 1-53.
- Edney, E. B. (1940). The Heteronychinae of South Africa. *Occ. Pap. Natl. Mus. S. Rhodesia* (9) 29-126.
- Edney, E. B. (1947). The Holonychinae of South Africa. Part I: The tribes Pseudochrysidini Bischoff, Parnopini Aaron, Allocoeliini Mocsáry. *Occ. Pap. Natl. Mus. S. Rhodesia* 2(13) 168-205.
- Edney, E. B. (1952). The Holonychinae of South Africa. II. *Chrysidea* Bischoff, *Gonochrysis* Licht. and *Holochrysis* Licht. *Occ. Pap. Natl. Mus. S. Rhodesia* 17 403-52.
- Edney, E. B. (1953). The Holonychinae in South Africa. III: *Tetrachrysis* Licht. *Occ. Pap. Natl. Mus. S. Rhodesia* 18 532-9.
- Edney, E. B. (1954a). The Holonychinae of South Africa. IV: *Tetrachrysis* Licht. *Occ. Pap. Natl.*

- Mus. S. Rhodesia* 19 543-623.
- Edney, E. B. (1954b). The Holonychinae of South Africa. V: *Pentachrysis* Licht. and *Hexachrysis* Licht. *Occ. Pap. Natl. Mus. S. Rhodesia* 19 624-73.
- Edney, E. B. (1956). Hymenoptera: Chrysididae. In Hanstrom, Brinck, and Rudebeck. *South African Animal Life* 3:415-19.
- Edney, E. B. (1962). New species and records of Chrysididae from southern Africa. *Occ. Pap. Natl. Mus. S. Rhodesia* 26B 856-70.
- Else, G. R. (1973). Recent records and notes of *Omalus puncticollis* and other local chrysidid wasps in Hampshire. *Ent. Mo. Mag.* 109 120-2.
- Enslin, E. (1939). Neue beitrage zur goldwespen-fauna von Cypern. *Ent. Z. Frankfurt a. m.* 53 105-10.
- Enslin, E. (1950). On the Chrysididae of Cyprus. *Ann. Mag. Nat. Hist.* (12)3 656-71.
- Evans, H. E. (1966). Nests and prey of two species of *Philanthus* in Jackson Hole, Wyoming. *Great Basin Nat.* 26 35-40.
- Evans, H. E. (1969). Three new Cretaceous aculeate wasps. *Psyche* 75 251-61.
- Evans, H. E. (1970). Ecological-behavioral studies of the wasps of Jackson Hole, Wyoming. *Bull. Mus. Comp. Zool. Harvard* 140:451- 511.
- Evans, H. E. (1973a). Cretaceous aculeate wasps from Taimyr, Siberia. *Psyche* 80 166-78.
- Evans, H. E. (1973b). Further studies on the wasps of Jackson Hole, Wyoming. *Great Basin Nat.* 33 147-55.
- Eversmann, E. (1857). Fauna hymenopterologica Volgo-uralensis. Fam. V. Chrysidarum. *Bull. Soc. Imper. Nat. Moscow* 30 544-67.
- Fabricius, J. C. (1775). *Systema entomologiae, etc.*, xxviii+832 pp. Libraria Kortii, Flensburgi et Lipsiae.
- Fabricius, J. C. (1781). *Species insectorum etc.*, Vol. 1, pp. 454-7. C. E. Bohni, Hamburg.
- Fabricius, J. C. (1787). *Mantissa insectorum etc.*, Vol. 2, 382 pp., C. G. Proft, Hafniae.
- Fabricius, J. C. (1793). *Entomologia Systematica emendata et aucta etc.*, Vol. 2, viii+519 pp. C. G. Profit, Hafniae.
- Fabricius, J. C. (1794). *Entomologia Systematica emendata et aucta etc.*, Vol. 4, vi+472 pp. C. G. Proft, Hafniae.
- Fabricius, J. C. (1798). *Entomologiae systematicae supplementum*, pp. 257-8. C. G. Proft, Hafniae.
- Fabricius, J. C. (1804). *Systema Piezatorum*, xiv + 439 pp. + 32 pp. C. Richard. Brunsvigae.
- Forel, A. (1911). Fourmis nouvelles ou intéressantes. *Bull. Soc. Vand. Sci. Nat.* 47 331-60.
- Förster, J. R. (1771). *Novae species insectorum, Centuria I* viii+100 pp. T. Davies, London.
- Förster, A. (1853). Eine Centurie neuer Hymenopteren. *Verhandl. Nat. Ver. preuss. Rheinl.* 10 266-362.
- Förster, A. (1868). Synopsis der Familien und Gattungen der Ichneumoniden. *Verhandl. Naturhist. Ver. preuss. Rheinl. u. Westphal.* 30:135-221.
- Fourcroy, A. F. (1785). *Entomologie Parisiensis etc.* 2:440-41. Parisiis.
- Fouts, R. M. (1922). New parasitic Hymenoptera from the oriental islands. *Philippine J. Sci.* 20 619-37.

- Fouts, R. M. (1925). Descriptions of three new Hymenoptera from the Philippine Islands. *Philippine J. Sci.* 26 515–19.
- French, L. D. (1982). See Bohart and Kimsey (1982).
- French, L. D. (1985). *Exallopyga*, a new genus of neotropical Elampinae. *J. Kansas Ent. Soc.* 58 620–25.
- French, L. D. (1986). See Bohart and French (1986).
- Frey-Gessner, E. (1887). Hymenoptera Helvetiae. Fam. Chrysididae. *Mitt. Schweiz. Ent. Ges.* 7 11–89.
- Gauss, R. (1964). *Cleptes semiauratus* L. im Rahmen der parasitenliste von *Pristophora abietina* in sudwestdeutschland. *Zs. Agnew. Ent.* 54 225–32.
- Geoffroy, E. L. (1785). In *Entomologia Parisiensis etc.*, (ed. A. F. de Fourcroy), Vol. 2; 440–1. Via et A. Serpentineis Paris.
- Germar, E. F. (1817). *Reise nach Dalmatien und in das Gebiet von Ragusa*. F. A. Brockhaus, Leipzig und Altenburg. 323 pp.
- Gerstaecker, A. (1869). Zwei neue von Hrn. Prof. Zeller in Ober- Karnten gesammelte *Chrysis* arten. *Stett. Ent. Ztg.* 1869 185–6.
- Gess, F. W. and Gess, S. K. (1980). Ethological studies of *Jugurtia confusa* Richards, *Ceramius capicola* Brauns, *C. linearis* Klug and *C. lichtensteinii* (Klug) in the eastern Cape Prov. of South Africa. *Ann. Cape Prov. Mus. (Nat. Hist.)* 13 63–83.
- Giebel, C. G. (1862). Wirbelthier und Insektenreste im Bernstein. Halle, *Zs. Ges. Naturwiss.* 20 311–21.
- Ghiliani, V. (1842). Insetti di Sicilia. *Atti Accad. Gioènia, Catania* 19 21–4.
- Giraud, J. (1863). Hyménoptères recueillis aux environs de Suise, en Piemont, et dans le département des Haute-Alpes en France. *Verhandl. Zool.-Bot. Ges. Wien* 13 23–4.
- Gmelin, J. F. (1790). *Caroli a Linné, Systema naturae per regna tria naturae*, (13th edn) Vol. 1, *Regnum Animale*, Part 5, pp. 2250–3020 G. E. Beer., Lipsiae.
- Gogorza, J. (1887). Crisídidos de los alrededores de Madrid. *An. Soc. Espanola Hist. Nat. (Madrid)* 16 17–88.
- Grandi, G. (1961). Studi di un entomologa sugli imenotteri superiori. *Boll. Inst. Ent. Univ. Bologna* 25 1–659.
- Gradl, H. (1881). Aus der fauna des Egerlandes. I. Hymenoptera. *Ent. Nach.* 7 294–309.
- Gravenhorst, I. L. C. (1807). *Vergleichende uebersicht des Linneischen und einiger neuer Zoologischer Systeme*, xx + 476 pp. H. Dieterich, Gottingen.
- Gribodo, G. (1874). Diagnosi di alcune specie nuove del genere *Chrysis*. *Ann. Mus. Civ. Storia Nat., Genova* 6 358–60.
- Gribodo, G. (1875). Diagnose d'un Hyménoptère nouveau de la famille des chrysiens. *Petites Nouv. Ent.* 163 491.
- Gribodo, G. (1879). Note Imenotterologiche. *Ann. Mus. Civ. Storia Nat., Genova* 14 325–47.
- Gribodo, G. (1884a). Spedizione Italiana nell'Africa Equatoriale, risultati Zoologici imenotteri. *Ann. Mus. Civ. Storia Nat., Genova (ser. 2)* 1 277–323.
- Gribodo, G. (1884b). Sopra alcuni imenotteri raccolti a Minhla nel regno di Birmania. *Ann. Mus. Civ. Storia Nat. Genova* (2) 1 349–68.

- Gribodo, G. (1924). Imenotteri aculeati di Cirenaica raccolti dal Prof. Alessandro Ghigi. *Atti della Soc. Ital. Sci. Nat. Milano* 53:245-68.
- Grigarick, A. A. and Stange, L. A. (1968). The pollen-collecting bees of the Anthidiini of California. *Bull. Calif. Insect Surv.* 9 1-113.
- Guérin (Guérin-Ménéville), F. E. (1842). Description de quelques Chrysidides nouvelles. *Rev. Mag. Zool.* (1) 5 144-50.
- Hadlington, P. and Hoschke, F. (1959). Observations on the ecology of the phasmatid *Ctenomorphodes tessulata* (Gray). *Proc. Linn. Soc. N.S.W.* 84 146-59.
- Haldeman, S. S. (1844). Descriptions of insects presumed to be undescribed. *Proc. Acad. Nat. Sci. Philadelphia* 2 53-5.
- Halstead, J. A. (1987). On the rearing of *Microchridium minutum* and its probable host *Ammoplanellus* (*Ammoplanellus*) *umatilla*. *Pan-Pac. Ent.* 63 256-7.
- Hammer, K. (1950). Ueber einige von Kjell Kolthoff and anderen in China gesammelten Hymenoptera. Chrysididae, Cleptidae, Mutillidae. *Ark. Zool. Stockholm* 42A (8) 1-12.
- Handlirsch, A. (1906). Die fossilen Insecten und die phylogenie der rezenten Formen. Ein *Handbuch für Palaontologen und Zoologen*. Fasc. 3, Lief 1-4, 640 pp., 36 pl. Leipzig.
- Harris, M. (1776-1780). *An exposition of English insects*, 166 pp. White and Robinson, London.
- Haupt, H. (1956). Die unechten und ecten Goldwespen Mitteleuropas. *Abhandl. Mus. Tierk. Dresden* 23 15-139.
- Heather, N. W. (1965). Occurrence of Cleptidae parasites in eggs of *Ctenomorphodes tessulatus* (Gray) in Queensland. *J. Ent. Soc. Qld.* 4 86-7.
- Hellen, W. (1919). Über finländische Goldwespen. *Soc. Pro Fauna et Flora Fennica, Helsingfors* 46 203-13.
- Hicks, C. H. (1929). *Pseudomasaris edwardsii* Cresson, another provisioning wasp, with further notes on *P. vespoidea* (Cresson). *Canad. Ent.* 61:121-5.
- Hicks, C. H. (1932). Notes on *Sphex aberti* (Hald.). *Canad. Ent.* 64 145-51.
- Hicks, C. H. (1934). Observations on a chrysidid parasite and its host. *Ent. News* 44 206-9.
- Hoffer, A. (1937a). De speciei *Hedychridium roseum* Rossi formis coloris. *Casopis Cs. Spol. Ent.* 34 65-6.
- Hoffer, A. (1937b). De speciei *Chrysis dichroa* Dahlb. ex Slovakia varietate nova. *Casopis Cs. Spol. Ent.* 34 66.
- Hoffmann, A. (1935). Neue Chrysididen. *Ent. Anz. Vienna* 1935 228.
- Hoffmann, A. (1937). Neue Chrysididen. *Ent. Rundschau, Stuttgart* 54 491.
- Horning, D. S. Jr. (1971). Two new species of *Chrysura* from western North America. *Pan-Pac. Ent.* 47 26-32.
- Huber, J. T. and Pengelly, D. H. (1978 (1977)). A revision of the genus *Elampus* Spinola (*Notozus* of authors). *Proc. Ent. Soc. Ontario* 108 75-137.
- Huber, J. T. and Pengelly, D. H. (1980 (1979)). Two new species of *Elampus* from Puerto Rico and Cuba with notes on *Elampus viridis* Cresson. *Proc. Ent. Soc. Ontario* 110 47-51.
- Hungerford, H. B. (1937). *Pseudomasaris occidentalis* (Cresson) in Kansas. *J. Kans. Ent. Soc.* 10:133-4.
- Invrea, F. (1929). Risultati zoologici della missione inviata dalla R. Società geographica



- italiana per l'esplorazione dell'oasi di Giarabub. Mutillidi e Chrysididae. *Ann. Mus. Storia Nat. Genova* 53 299–307.
- Invrea, F. (1932). Crisidi raccolti in Cirenaica e Tripolitania da Geo. C. Kruger. *Mem. Soc. Ent. Ital., Genova* 11 41–51.
- Invrea, F. (1939). Secondo contributo per lo studio dei Chrisidi delle isole italiane dell'Egeo. *Boll. Soc. Ent. Ital.* 71 107–9.
- Invrea, F. (1948). I 'tipi' dei chrisidi descritti dal Guérin- Méneville. *Ann. Mus. Civ. Storia Nat., Genova* 63 253–62.
- Invrea, F. (1952). Imenotteri raccolti da L. Ceresa in Sardegna. I. Crisidi, Mirmosidi e Mutillidi. *Alti Soc. Ital. Sic. Nat. Milan* 91 220–8.
- Iwata, K. (1963). Parasitism of *Chrysis shanghaiensis* Smith on *Cnidocampa flavescens* Walker in Kagawa, Japan. *Trans. Shikoku Ent. Soc.* 7 97–100.
- Janvier, H. 1933. Étude biologique de quelques Hyménoptères du Chili. *Ann. Sci. Nat. Zool.* 16 210–356.
- Johnson, M. D. (1974). *Trypargilum politum* (Say) as a host for *Trichrysis tridens* (Lep.). *Proc. Ent. Soc. Wash.* 76 448–9.
- Jurine, L. (1807). *Nouvelle méthode de classer les Hyménoptères et les Diptères*, 320+4+14 pls. J. J. Paschord, Geneve.
- Kieffer, J. J. (1905). Description de nouveaux Proctotrypides exotiques. *Ann. Soc. Sci. Bruxelles* 29 95–142.
- Kieffer, J. J. (1907). Beschreibung neuer im British Museum zu London auf bewahrter Proctotrypiden. *Berliner Ent. Zs.* 51 279–302.
- Kieffer, J. J. (1910). Description de nouveaux microhyménoptères du Brésil: *Ann. Soc. Ent. France* 78 287–348.
- Kieffer, J. J. (1911). Nouveaux bethylides et dryinides exotiques du British Museum de Londres. *Mem. Ann. Soc. Sci. Bruxelles* 35 200–33.
- Kieffer, J. J. (1916a). Diapriidae. *Das Tierreich*. Vol. 44, 627 pp. R. Friedlander, Berlin.
- Kieffer, J. J. (1916b). Beiträge zur kenntnis der gattung *Loboscelidia* Westwood. *Philippine J. Sci.* 11 399–401.
- Kieffer, J. J. (1922). Philippine Serphidae (Proctotrupidae). *Philippine J. Sci.* 20 65–103.
- Kimsey, L. S. (1978). See Bohart and Kimsey (1978).
- Kimsey, L. S. (1981). The Cleptinae of the Western Hemisphere. *Proc. Biol. Soc. Wash.* 94 801–18.
- Kimsey, L. S. (1982a (1981)). A new North American chrysidid genus and redescription of the *Pseudolopyga* Krombein. *Pan-Pac. Ent.* 57 351–8.
- Kimsey, L. S. (1982b). See Bohart and Kimsey (1982).
- Kimsey, L. S. (1983). Review of the euchroeine chrysidids. *Pan- Pac. Ent.* 59 140–7.
- Kimsey, L. S. (1985). Distinction of the 'Neochrysis' genera and description of new species. *Psyche* 92 269–86.
- Kimsey, L. S. (1986a). A reevaluation of the systematic position of *Allocoelia* Mocsáry and a revision of the component species. *Syst. Ent.* 11 83–91.
- Kimsey, L. S. (1986b). *Cleptidea* revisited. *J. Kansas Ent. Soc.* 59 314–24.

- Kimsey, L. S. (1986c). Designation of chrysidid lectotypes. *Pan-Pac. Ent.* 62 105–110.
- Kimsey, L. S. (1986d). New species of the American genus *Adelphe* Mocsáry. *Ins. Mundi* 1 197–205.
- Kimsey, L. S. (1986e). New species and genera of Asian Amiseginae. *Psyche* 93 153–65.
- Kimsey, L. S. (1987a). New species of *Cleptes* from Asia and North America. *Pan-Pac. Ent.* 63 56–9.
- Kimsey, L. S. (1987b). Review of the subfamily Parnopinae. *J. Kansas Ent. Soc.* 60 83–91.
- Kimsey, L. S. (1987c). New genera and species of neotropical Amiseginae. *Psyche* 94 57–76.
- Kimsey, L. S. (1987d). The identity of three Fabrician chrysidid species. *Psyche* 94 271–4.
- Kimsey, L. S. (1988a). A new genus and four new species of African Elampini. *J. Ent. Soc. S. Afr.* 51 1–7.
- Kimsey, L. S. (1988b). The identity of three Fabrician chrysidid species. *Psyche* 95 271–4.
- Kimsey, L. S. (1988c). An unusual new genus of Chrysididae from Oman. *Psyche* 95 333–6.
- Kimsey, L. S. (1988d). Loboscelidiinae, new species and a new genus from Malaysia. *Psyche* 95 67–79.
- Kimsey, L. S. (1988e). *Hedychridium* of the Ethiopian Region. *J. Ent. Soc. S. Afr.* 51 193–205.
- Kimsey, L. S. and Bohart, R. M. (1981 (1980)). A synopsis of the chrysidid genera of neotropical America. *Psyche* 87 75–91.
- Kirby, W. F. (1833). Report on a small collection of Hymenoptera and Diptera from the Timor Laut Islands, formed by Mr. H. O. Forbes. *Proc. Zool. Soc. Lond.* 1883 343–6.
- Kiss, E. Z. (1930). Neuere daten zur Hymenopteren fauna von Ungarn, I and II. *Rovartani Lap., Budapest* 22 76–86.
- Klug, F. (1835). Des insectes d'Andalousie. In *Reise durch Tyrol, Oberitalien und Piemont nach dem südlichen Spanien*, (ed. J. Watt) pp. 86–110. Druts and Berlag, Passau.
- Klug, F. (1839). Versuch einer systematischen Aufstellung der Insectenfamilie Chrysididae. *Monatsber. der Berliner Acad.* 1839:1–2.
- Klug, F. (1845). *Symbolae physicae, seu icones et descriptiones insectorum, quae in itinere per Africam borealem et Asian occidentalem*. 4 vol. (in 2), text pages unnumbered. Reimeri, Berlin.
- Koenigsmann, E. (1978). Das Phylogenetische System der Hymenoptera. Theil 4:Aculeata. *Deutsche Ent Zs. (N. F.)* 25 365–35.
- Krombein, K. V. (1957). A generic review of the Amiseginae, a group of phasmatid egg parasites, and notes on the Adelphinae. *Trans. Amer. Ent. Soc.* 82 147–215.
- Krombein, K. V. (1958a). Biology and taxonomy of the cuckoo-wasps of coastal North Carolina. *Trans. Amer. Ent. Soc.* 84 141–68.
- Krombein, K. V. (1958b). Additions during 1956 and 1957 to the wasp fauna of Lost River State Park, West Virginia with biological notes and description of new species. *Proc. Ent. Soc. Wash.* 60 49–64.
- Krombein, K. V. (1959). Biological notes on *Chrysis* (*Ceratochrysis*) *enbuyki* Cooper, and its host, *Leptochilus republicanus zendaloides* (Robertson). *Ent. News* 70 17–23.
- Krombein, K. V. (1960). Additions to the Amiseginae and Adelphinae. *Trans. Amer. Ent. Soc.* 86 27–39.

- Krombein, K. V. (1963a). A new *Chrysura* from Plummers Island, Maryland. *Ent. News* 74 149–152.
- Krombein, K. V. (1963b). The host–parasite relationship of *Xylocelia virginiana* Rohwer and *Omalus intermedius* (Aaron). *Proc. Ent. Soc. Wash.* 65 264.
- Krombein, K. V. (1967). *Trap-nesting wasps and bees*, vi + 570 pp. Smithsonian Press, Washington.
- Krombein, K. V. (1969). The generic placement of two nearctic *Holopyga* with biological notes. *Proc. Ent. Soc. Wash.* 71 351–61.
- Krombein, K. V. (1979). Superfamily Bethyloidea. In *Catalogue of Hymenoptera in America north of Mexico* (ed. K. V. Krombein et al.) pp. 1203–51. US Govt. Prntg. Office, Washington.
- Krombein, K. V. (1980). Biosystematic studies of Ceylonese wasps, I. A Preliminary revision of the Amiseginae (pp. 246–60) *P. E. P. Deraniyagala Commem. Vol.* (ed. T.T.P. Gunawardena, etc.). 392 pp. Lake House Investments, Colombo, Sri Lanka.
- Krombein, K. V. (1983a). Biosystematic studies, XI: A monograph of the Amiseginae and Loboscelidiinae. *Smithson. Contrib. Zool.* 376 1–79.
- Krombein, K. V. (1983b). Three new egg parasites of South African walking sticks. *J. Ent. Soc. S. Afr.* 46 139–46.
- Krombein, K. V. (1984). Two new egg parasites of South African walking sticks and notes on two previously described species. *J. Ent. Soc. S. Afr.* 47 211–15.
- Krombein, K. V. (1986a). A remarkable new African amisegine wasp. *Proc. Ent. Soc. Wash.* 88 509–14.
- Krombein, K. V. (1986b). Three new cuckoo wasps from Siberian and Baltic amber. *Proc. Ent. Soc. Wash.* 88 740–7.
- Kurian, C. (1955). Bethyloidea (Hymenoptera) from India. *Agra Univ. J. Res.* 4 86–8.
- Kuznetsov-Ugamskii, N. N. (1927). Two new asiatic species of the genus *Cleptes*. [In Russian and Latin] *Acta Soc. Ent. Stauropolitanae, Stavropol* 3 25–30.
- Labram, J. D. and Imhof L. (1842). *Insecten der Schweiz. Die vorzüglichsten Gattungen je durch eine Art bildlich dargestellt von J. D. Labram, nach Eiteilung und mit Text von Dr. L. Imhoff*, Vol. 3 Verfasser, Basel.
- Latreille, P. A. (1796). *Précis des caractères génériques des Insectes etc.* xiv + 208 pp. F. Bordeaux, Paris.
- Latreille, P. A. (1802). *Histoire naturelle, des Crustacés et des Insectes*, Vol. 3, 467 pp. F. Dufart, Paris.
- Latreille, P. A. (1809). *Genera crustaceorum et insectorum*. Vol. 4, 397 pp., A. Koenig, Parisiis et Argentorati.
- Latreille, P. A. (1810). *Considérations générales der l'ordre naturel des animaux composant les classes des Crustacés, des Arachnides, et des Insectes*. 444 pp. F. Schoell, Paris.
- Lefebvre, B. V. (1986). Description of *Hedychridium mosadunense* n. sp. from the Netherlands. *Ent. Berich.* 46 95–6.
- Lepelletier de S. F., A. L. (1806). Mémoire sur quelques espèces nouvelles d'insectes de la section des Hyménoptères, appeles les porte-tuyaux (Chrysididae). *Ann. Mus. Hist. Nat.* 7 115–29.
- Lepelletier de S. F., A. L. and Audinet Serville, J. G. (1825). In *Encyclopedie methodique* (ed. A.

- G. Oliver), Vol. 10, pp. 7–13 and 493–5. See Olivier 1825.
- Lichtenstein, J. (1876). Note sur le genre *Chrysis*. *Petites Nouv. Ent.* 2 27.
- Lichtenstein, J. (1879). *Chrysis gogorzae* n. sp. *Bull. Soc. Ent. France* (5)9 165–6.
- Lin, K. (1964). The Taiwanese Loboscelidiidae. *Quart. J. Taiwan Mus., Taipei* 17 237–45.
- Linnaeus, C. (1758). *Systema naturae, etc.* (10th edn), Tomus 1, 823 pp. Laurentii Salvii, Holmiae.
- Linnaeus, C. (1761). *Fauna Suecica*, i–xlvi+578 pp. Laurentii Salvii, Stockholm.
- Linnaeus, C. (1767). *Systema naturae. I (part II)*, pp. 533–1327. Laurentii Salvii, Holmiae.
- Linsenmaier, W. (1951). Die europäischen Chrysididen. *Mitt. Schweiz. Ent. Ges.* 24 1–110.
- Linsenmaier, W. (1957). In Bytinski-Salz. Coleoptera and Hymenoptera from a journey through Asia Minor. II. Descriptions of new species and forms. *Rev. Fac. Sci. Univ. Istanbul* 22 163–170.
- Linsenmaier, W. (1959a). Revision der Familie Chrysididae. *Mitt. Schweiz. Ent. Ges.* 32 1–232.
- Linsenmaier, W. (1959b). Revision der familie Chrysididae. Nachtrag. *Mitt. Schweiz. Ent. Ges.* 32 233–40.
- Linsenmaier, W. (1968). Revision der familie Chrysididae. Zweiter Nachtrag. *Mitt. Schweiz. Ent. Ges.* 41 1–144.
- Linsenmaier, W. (1969). The chrysidid wasps of Palestine, a faunistic catalogue with descriptions of new species and forms. *Israel J. Ent.* 4 343–76.
- Linsenmaier, W. (1982). Neue Chrysididae aus Indo-Australien. *Entomofauna* 21 323–47.
- Linsenmaier, W. (1984). Das subgenus *Trichrysis* Lichtenstein in Nord und Südamerika. *Mitt. Schweiz. Ent. Ges.* 57 194–224.
- Linsenmaier, W. (1985). Revision des genus *Neochrysis* Linsenmaier. *Entomofauna* 26 425–87.
- Linsenmaier, W. (1987). Revision der Familie Chrysididae. *Mitt. Schweiz. Ent. Ges.* 60 133–58.
- Lomholdt, O. (1973). Biological observations on the digger-wasp *Passaloecus eremita* Kohl. *Vidensk. Meddr dansk naturh.* 136 29–41.
- Lucas, H. (1849). Exploration scientifique de l'Algérie. *Zoologie, Paris* 3 304–16.
- Maa, T. C. and Yoshimoto, C. M. (1961). Loboscelidiidae, a new family of Hymenoptera. *Pac. Ins.* 3 523–48.
- Mader, L. (1933). Etwas Über Hymenopteren. *Ent. Anz.* 13 125–6.
- Mader, L. (1936). Beitrag zur Kenntnis der Hymenopteren. I. *Ent. Zs.* 50 261–3, 275–7, 288–90.
- Mader, L. (1939). See Linsenmaier 1959a:170.
- Magretti, P. (1895). Esplorazione de Giuba. IX. Imenotteri. *Ann. Mus. Civ. Storia Nat. Genova* 35 149–73.
- Magretti, P. (1898). Imenotteri della seconda spedizione di Don Eugenio dei Principi Ruspoli nei paesi Galla e Somali. *Ann. Mus. Civ. Storia Nat. Genova* 39 25–54.
- Mantero, G. (1910). Collezioni zoologiche fatte nell' Uganda dal Dr. E. Bayon. Chrysididae. *Ann. Mus. Civ. Storia Nat. Genova* (3)4 (1908–10), 450–3, 546–9.
- Mantero, G. (1916). Viaggio di Leonardo Fea nell'Africa occidentale. Chrysididae. *Ann. Mus. Civ. Storia Nat. Genova* 47 26–32.



- Marechal, P. (1937). Recherches morphologiques et systematiques sur les Hyménoptères. *Bull. Ent. Soc. Belg.* 77 395–403.
- Marquet, M. (1879). Aperçu des insectes Hyménoptères qui habitent le midi de la France. *Bull. Soc. Hist. Nat. Toulouse* 1879 156–163.
- Melander, A. L. and Brues C. T. (1902). New species of *Gasteruption*, *Trigonalys*, *Parnopes* and *Psammophila*. *Biol. Bul.* 3 33–42.
- Mercet, R. Garcia (1902). Nota sobre algunos Chrysididos de Siria. *Bol. Soc. Espan. Hist. Nat., Madrid* 2 221–3.
- Mercet, R. Garcia (1904a). Especies nuevas de chrysididos. *Bol. Soc. Espan. Hist. Nat., Madrid* 4 83–9.
- Mercet, R. Garcia (1904b). Especies españoles del género *Hedychridium*. *Bol. Soc. Espan. Hist. Nat., Madrid* 4 144–52.
- Mercet, R. Garcia (1915). Especies nuevas de *Hedychridium*. *Bol. Soc. Espan. Hist. Nat. Madrid* 15 155–61.
- Michener, C. D. (1944). Comparative external morphology, phylogeny, and a classification of the bees. *Bull. Amer. Mus. Nat. Hist.* 82 1–330.
- Mingo, E. (1985). *Chrysis* (*Chrysidea*) *asensioi*, especie nueva. *Eos* 61 215–18.
- Mocsáry, A. 1878. Data ad faunam Hungariae septentrionalis comitatum: Zolyom ek Hipto. *Pub. Math. Phys. Acad. Hung. Sci. Ed.* 15 247.
- Mocsáry, A. (1879a). Hymenoptera nova e fauna Hungarica. *Termesz. Fuzetek* 3 120–4.
- Mocsáry, A. (1879b). Data caracteristica ad faunum Hymenopterologicam regionis Budapestinensis. *Topogr. Med. Phys. Reg. Budapest* 1879 8–10.
- Mocsáry, A. (1882). *Chrysididae faunae Hungaricae*. Vol.3, 94 pp. Hungarian Academy of Sciences, Budapest.
- Mocsáry, A. (1883). Hymenoptera nova europaea et exotica. *Ertek. Termesz. Koreb.* 13(11) 1–72.
- Mocsáry, A. (1887a). Studia synonymica. *Termesz. Fuzetek* 2 12–20.
- Mocsáry, A. (1887b). Eine neue Goldwespen-Art and - Varietat aus Deutschland. *Ent. Nach. Berlin* (19)13 291.
- Mocsáry, A. (1889). *Monographia Chrysididarum orbis terrestris universi*, 643 pp. Hungarian Academy of Sciences, Budapest.
- Mocsáry, A. (1890). Additamentum primum ad monographiam chrysididarum. *Termesz. Fuzetek* 13 45–66.
- Mocsáry, A. (1893). Additamentum secundum ad monographiam Chrysididarum orbis terrarum universi. *Termesz. Fuzetek* 15 213–40.
- Mocsáry, A. (1896). Species hymenopterorum magnificae novae in collectione Musaei Nationalis Hungarici. *Termesz. Fuzetek* 19 1–8.
- Mocsáry, A. (1897). Hymenoptera nova e fauna Hungarica. *Termesz. Fuzetek* 20 644–7.
- Mocsáry, A. (1899). Species chrysididarum novae in collectione musaei nationalis Hungarici. *Termesz. Fuzetek* 22 483–94.
- Mocsáry, A. (1902a). Species aliquot Chrysididarum novae. *Termesz. Fuzetek* 25 339–49.
- Mocsáry, A. (1902b). Chrysididae in Africa meridionali a Dre. H. Brauns collectae at Ab. Alexandro Mocsáry recensitae. *Termesz. Fuzetek* 25 536–72.

- Mocsáry, A. (1904). Chrysididae in Africa meridionali a Dr. H. Brauns collectae. *Ann. Mus. Natl. Hung.* 2 403–13.
- Mocsáry, A. (1908a). Chrysididen von Madagaskar, den Comoren und Ostafrika. In *Reisen in Ostafrika*, (ed. A. Voetzkow) 2 259–63.
- Mocsáry, A. (1908b). Chrysididae in Africa meridionali a Dre. H. Brauns collectae. *Ann. Mus. Natl. Hung.* 6 505–26.
- Mocsáry, A. (1909). Chrysididae in territorio Syr-Dariae a Leone Wollmann collectae. *Archiv. Zool.* 1 1–9.
- Mocsáry, A. (1910). In L. Schultze. Zoologische und anthropologische Ergebnisse e Forschungsreise im Südafrika. *Med. Nat. Ges. zu Jena Denkschriften*, Vol. 16, 552 pp., 19 pl. G. Fisher, Jena.
- Mocsáry, A. (1911a). Insectorum messis in insula Creta a Lud. Biro Congregata. II. Hymenoptera: Chrysididae. *Ann. Mus. Natl. Hung.* 9 316–17.
- Mocsáry, A. (1911b). Species Chrysididarum novae. *Ann. Mus. Natl. Hung.* 9 443–74.
- Mocsáry, A. (1912a). Species Chrysididarum novae. *Ann. Mus. Natl. Hung.* 10 375–414.
- Mocsáry, A. (1912b). Species Chrysididarum novae. *Ann. Mus. Natl. Hung.* 10 549–92.
- Mocsáry, A. (1913a). Species Chrysididarum novae. *Ann. Mus. Natl. Hung.* 11 1–45.
- Mocsáry, A. (1913b). Chrysididae in insula Formosa a Joanne Sauter collectae. *Ann. Mus. Natl. Hung.* 11 613–19.
- Mocsáry, A. (1913c). The Chrysididae of the Philippine Islands. *Philippine J. Sci.* 8 (sect. D) 287–91.
- Mocsáry, A. 1914. Chrysididae plerumque exoticae novae. *Ann. Mus. Natl. Hung.* 12 1–72.
- Mocsáry, A. and Szépligeti, V. (1901). Hymenopteren. In *Zoologische Ergebnisse der dritten Asiatischen Forschungsreise de Grafen Eugen Zichy*, Vol. 2, pp. 121–69. Victor Hornyánszky, Budapest.
- Móczár, L. (1946). Ueber einige seltene subliche Hymenopteren aus meinen sammelaus beuten. *Folia Ent. Hung., Budapest* 1 27–8.
- Móczár, L. (1951). Les Cleptidae du Musée Hongrois d'Histoire Naturelle. *Ann. Hist. Nat. Mus. Natl. Hung.* 1:260–82.
- Móczár, L. (1961). On the habits of *Stilbum cyanurum* Forst. *Ann. Hist. Nat. Mus. Natl. Hung.* 53 463–6.
- Móczár, L. (1962). Bemerkungen Über einige *Cleptes*-arten. *Acta Zool.* 8 115–25.
- Móczár, L. (1964a). Ergebnisse der revision der Goldwespenfauna des Karpatenbeckens. *Acta Zool.* 10 433–50.
- Móczár, L. (1964b). Über die *Notozus*-arten Ungarns. *Ann. Mus. Natl. Hung. (Zool.)* 56 439–47.
- Móczár, L. (1965). Weitere ergebnisse der revision der goldwespenfauna des Karpatenbeckens. *Acta Zool.* 11 168–80.
- Móczár, L. (1967a). Chrysidoida. *Fauna Hungariae* 86(2) 1–118. Budapest.
- Móczár, L. (1967b). Erbegnisse der zoologischen Forschungen von Dr. Z. Koszab in der Mongolei. *Acta Zool. Hung.* 13 183–90.
- Móczár, L. (1968a). Drei neue *Cleptes*- Arten. *Acta Zool. Acad. Sci. Hung.* 14 167–73.

- Móczár, L. (1968*b*). Einige *Cleptes*-Arten aus der Sammlung von Karl Kusdas. *Opusc. Zool. Budapest* 7 367-70.
- Móczár, L. (1971). Mesitinae of world, genera "*Mesitius* Spinola", *Pilomesitius* Móczár, *Parvoculus* Móczár, *Pycnomesitius* Móczár and *Heterocoelia* Dahlbom. III. *Acta Zool. Acad. Sci. Hung.* 17 295-332.
- Móczár, L. (1983). The Chrysidoidea, Pompiloidea and Vespoidea fauna of the Hortobagy National Park. In *The fauna of Hortobagy National Park*, pp. 353-9 Hungarian Academy of Science, Budapest.
- Montrousier, R. P. (1864). In Essai sur la faune entomologique de Kanala (Nouvelle-Calédonie) et description de quelques especes nouvelles ou peu connues, (ed. B. P. and R. P. Perrand) *Ann. Soc. Linn. Lyon* (2)11 46-257.
- Moore, C. G. (1966). Taxonomy of the *coerulans* group of the genus *Chrysis* in North America. *Ann. Ent. Soc. Amer.* 59 1125-31.
- Morgan, D. (1984). *Cuckoo-wasps. Handbook for the identification of British Insects*, Vol. 6, pp. 1-37. Royal Entomological Society, London.
- Morice, F. D. (1909). A list of chrysidids taken by the writer in two visits to Jaffa, Jerusalem and Jericho, with descriptions of new species. *Trans. Ent. Soc. Lond.* 57 465-9.
- Morice, F. D. (1916). New chrysidids from Egypt and Algeria. *Trans. Ent. Soc. Lond.* 1916 264-8.
- Morice, F. D. (1921). Annotated lists of aculeate Hymenoptera (except *Heterogyna*) and chrysidids recently collected in Mesopotamia and north-west Persia. *Bombay Nat. Hist. Soc.* 28 192-203.
- Müller, M. (1909). Varietaten von *Parnopes grandior* Pall. *Deutsch Ent. Zs.* 1909 732.
- Müller, M. (1941). *Bembix rostrata* and *Parnopes grandior*. *Mitt. Deutsche Ent. Ges. Berlin* 10 4-7.
- Newman, E. (1850). Description of an apparently new lepidopterous insect of the family Glaucopidae. *Zoologist* 8, appendix, pp. 122- 123.
- Norton, E. (1879). On the chrysidids of North America. *Trans. Amer. Ent. Soc.* 7 233-42.
- Nurse, C. G. (1902). New species of Indian Chrysididae. *Entomologist* 35 304-8.
- Nurse, C. G. (1903*a*). New species of Indian Chrysididae. *Entomologist* 36 10-12.
- Nurse, C. G. (1903*b*). New species of Indian Chrysididae. *Entomologist* 36 40-2.
- Nurse, C. G. (1904). New species of Indian Hymenoptera. *J. Bombay Nat. Hist. Soc.* 16 19-26.
- Olivier, A. G. (1790). *Encyclopédie méthodique. Histoire naturelle. Insectes*. Vol. 5, 793 pp. Panckoucke, Paris.
- Olivier, A. G. (1825). *Encyclopédie méthodique. Dictionnaire des insectes*. Vol. 10, 833 pp. Ital. Neudruck, Paris.
- Pallas, P. S. (1771). *Reise durch verschiedene porvinzen des Russischen Reiches in den Jahren Theile in 5 Banden*, Vol.1 p. 474. Anhang, Petersburg.
- Panfilov, D. V. (1969 (1968)). New species of middle Asian and Transcaucasian Chrysididae, Masaridae. In, Investigations on the fauna of the Soviet Union (Insects) (ed. A. N. Zhelkootsev and L. V. Zimina). *Sb. Trudy Zool. Munz* 11 36-43.
- Panzer, G. F. W. (1792-1810). *Fauna Insectorum Germanicae etc.* Heft 52, no. 26; 85, no. 13. Felssecker, Nürnberg.

- Panzer, G. F. W. (1804). *Systematische Nomenclatur über weiland des Herrn Dr. Jacob Christian Schaeffers natürlich ausgemahlte Abbildungen regensburgscher Insekten*. 260 pp. Palm, Erlangen.
- Panzer, G. F. W. (1806). *Kritische Revision der Insectenfauna Deutschlands, nach dem System bearbeitet*. Bändchen 2, 271 pp. Felssecker, Nürnberg.
- Parker, D. E. (1936). *Chrysis shanghaiensis* Smith, a parasite of the oriental moth. *J. Agric. Res.* 52 449-58.
- Parker, F. D. (1962). A host of *Chrysis* (*Trichrysis*) *mucronata* Brullé and an additional host of *Chrysis* (*Chrysis*) *coerulans*. *Pan-Pac. Ent.* 38 140.
- Parker, F. D. (1967). Notes on the nests of three species of *Pseudomasaris* Ashmead. *Pan-Pac. Ent.* 43 213-16.
- Parker, F. D. (1970). New North American *Microdynerus* with notes on the nests of two species. *Pan-Pac. Ent.* 46 241-53.
- Parker, F. D. and Bohart, R. M. (1966). Host-parasite association in some twig-nesting Hymenoptera from western North America. *Pan-Pac. Ent.* 42 91-8.
- Parker, F. D. and Bohart, R. M. (1968). Host-parasite associations in some twig-nesting Hymenoptera from western North America, II. *Pan-Pac. Ent.* 44 1-6.
- Patton, W. H. (1879). Descriptions of several new Proctotrupidae and Chrysididae. *Canad. Ent.* 11 64-8.
- Perez, J. (1894 (1895)). Voyage de M. Ch. Alluaud aus îles Canaries. *Ann. Soc. Ent. France* 64 191-204.
- Perez, J. (1907). Mission J. Bonnier et Ch. Perez (Golfe Persique 1901). II. Hyménoptères. *Bul. Sci. France Belg., Paris* 41 485-505.
- Péron, M. (1804). Mémoire sur le nouveau genre *Pyrosoma*. *Ann. Mus. Hist. Nat. Paris* 4 437-46.
- Perraudin, W. (1978). Extrait de monographie des chrysidides de Corse. *Bull. Soc. Sci. Nat. Corse* 626 53-67.
- Piel, O. (1933). *Monema flavescens* Wkr. and its parasites. *Lingnan Sci. J.* 12 (suppl.) 173-201.
- Polaszek, A. (1987). Chrysididae. Summary of records of chrysidid parasitoids of Southeast Asian Limacodidae. In, *Slug and nettle caterpillars* (ed. M. J. W. Cock, H. C. J. Godfray, and J. D. Holloway), pp. 185-6. CABI, Wallingford.
- Powell, J. A. (1963) Biology and behavior of nearctic wasps of the genus *Xylocelia*, with special reference to *X. occidentalis* (Fox). *Wasmann J. Biol.* 21 155-76.
- Provancher, A. (1881). Fam. IX des Chrysidés. Chrysididae. Faune Canadienne. Les Insectes Hyménoptères. *Nat. Canad.* 12:300-304.
- Radoszkowski, O. (1866). Enumeration des especes de chrysidés de Russie. *Horae Soc. Ent. Ross.* 3 245-310.
- Radoszkowski, O. (1876a). Matériaux pour servir à une faune hyménoptérologique de la Russie. *Horae Soc. Ent. Ross.* 12 106-10.
- Radoszkowski, O. (1876b). Comte-rendu des Hyménoptères recueillis en Egypt et Abyssinie in 1873. *Horae Soc. Ent. Ross.* 12 111-50.
- Radoszkowski, O. (1877). Chrysidiformis, Mutillidae a Sphecidae. In, *Reise in Turkestan* (ed A. Fedtshenko). *Zool. Theil* 2 i-ii, 1-27.



- Radoszkowski, O. (1880). Les Chrysidés et Sphegides du Caucase. *Horae Soc. Ent. Ross.* 15 140–56.
- Radoszkowski, O. (1881*a*). Sitzuna am 5 (17) Februar. *Horae Soc. Ent. Ross.* 16 (*Bull. Ent.*), iii–xxii.
- Radoszkowski, (1881*b*). Hyménoptères d'Angola. *J. Acad. Sci. Math. Phys. Nat. Lisboa* 8 197–221.
- Radoszkowski, O. (1887). Insect in itinere Cl. N. Przelwalskii in Asia Centrale. Novissime Lecta III. *Horae Soc. Ent. Ross.* 21 41–52.
- Radoszkowski, O. (1889 (1888)). Revision des armures copulatrices des mâles de la tribu des Chrysidés. *Horae Soc. Ent. Ross.* 23 3–40.
- Radoszkowski, O. (1890). Hyménoptères recoltés sur le mont Ararat. *Horae Soc. Ent. Ross.* 24 502–10.
- Radoszkowski, O. (1891). Descriptions de Chrysidés nouvelles. *Rev. Ent. (Caen)* 10 123–98.
- Radoszkowski, O. (1893*a*). Faune hyménoptérologique transcaspienne. *Horae Soc. Ent. Ross.* 27 38–81.
- Radoszkowski, O. (1893*b*). Descriptions d'Hyménoptères nouveaux. *Rev. Ent. (Caen)* 12 24–244.
- Rafinesque, C. S. (1818). Discoveries in natural history, made during a journey through the western region of the United States. *Amer. Mon. Mag. and Crit. Review* 3 354–56.
- Rasnitsyn, A. P. (1980). The origin and evolution of Hymenoptera. *Trudy Paleontol. Inst.* 174 1–190. [In Russian.]
- Readshaw, J. L. (1965). A theory of phasmatid outbreak release. *Austr. J. Zool.* 13, 475–90.
- Retzius, A. I. (1783). *Genera et species insectorum, etc.* (ed. C. Regeer), pp. 66–7. Siegfried Lebrecht, Lipsiae.
- Richards, O. W. (1935). Notes on the nomenclature of the aculeate Hymenoptera with special reference to British genera and species. *Trans. Roy. Ent. Soc. London* 83:143–76.
- Richards, O. W. (1956). An interpretation of the ventral region of the hymenopterous thorax. *Proc. R. Ent. Soc. Lond. (A)* 31 99–104.
- Riek, E. F. (1955). Australian cleptid egg parasites of *Cresmododa* (Phasmodea). *Austr. J. Zool.* 3 118–30.
- Riek, E. F. (1970). *The insects of Australia. Hymenoptera*, pp. 867–959. Melbourne University Press, Melbourne.
- Rohwer, S. A. (1909). Some new chrysidid wasps from western United States. *Psyche* 16 87–92.
- Rohwer, S. A. (1911). On some hymenopterous insects from the island of Formosa. *Proc. U. S. Natl. Mus.* 39 477–85.
- Rohwer, S. A. (1913). Results of the Yale Peruvian expedition of 1911: Hymenoptera, superfamilies Vespoidea and Sphecoidea. *Proc. U. S. Natl. Mus.* 44 439–54.
- Rohwer, S. A. (1921*a*). Description of a cuckoo-wasp from the Hawaiian Islands. *Proc. Haw. Ent. Soc.* 5 67–9.
- Rohwer, S. A. (1921*b*). Some Philippine wasps of the family Chrysididae. *Philippine J. Sci.* 18 691–2.
- Rosenheim, J. A. and Grace, J. K. (1987). Biology of a wood-nesting wasp, *Mimumesa mixta*

- (W. Fox) and its parasite *Elampus viridicyaneus* Norton. *Proc. Ent. Soc. Wash.* 89 351-5.
- Rossi, P. (1790). *Faunae Etruscae etc.* Vol. 2, pp. 74-77. T. Masi and Sociorum, Liburni.
- Rossi, P. (1792). *Mantissa Insectorum, exhibens species nuper in Etruria collectas, etc.* Polloni, Pisa 1 132-4.
- Rye, E.C. (1876). Hymenoptera. *Zool. Record* (1874) 11 393-78.
- Rye, E.C. (1878). Hymenoptera. *Zool. Record.* (1876) 13 123-39.
- Saunders, S. S. (1873). On the habits and economy of certain hymenopterous insects which nidificate in briars: and their parasites. *Trans. R. Ent. Soc. Lond.* 1873 407-14.
- Saussure, H. de. (1887). Sur quelques Hyménoptères de Madagascar. *Soc. Ent.* 4 25-6.
- Saussure, H. de (1890). *Hyménoptères. Histoire phys. natur. et politique de Madagascar* 20, xxi + 590 pp., 27 pls. Alfred Grandidier, Paris.
- Say, T. (1824). Natural History. In *Narrative of expedition to the source of St. Peter's River, etc.*, (ed. W. H. Keating), Vol. 2, appendix part 1, pp. 253-459. H. C. Carey and I. Lea, Philadelphia.
- Say, T. (1828). Descriptions of new species of Hymenoptera of the United States. *Contributions of the Maclurian Lyceum to the Arts and Sciences* 1:67-83.
- Say, T. (1836 (1835)). Descriptions of new North American Hymenoptera and observations on some already described. *Boston J. Nat. Hist.* 1 210-305.
- Schenck, A. (1856). Beschreibung der in Nassau aufgefunden goldwespen, etc. *Jahrb. Ver. Naturk. Nassau, Wiesbaden* 11 13-89.
- Schenck, A. (1861). Zusatz und Berichtigungen. *Jahrb. Ver. Naturk, Nassau, Wiesbaden* 16 174-8.
- Schenck, A. (1870). Die Goldwespen mit Bestimmungstabellen der nassauischen und kurzer Beschreibung der ubrigen Deutsche Arten. *Programm des konigl. Gymnasiums zu Weilburg*, pp. 1-18.
- Schenck, A. (1871). Mehrere seltene, zum Theil neue Hymenopteren. *Stett. Ent. Ztg.* 32 253-7.
- Schletterer, A. (1891). Hymenoptera in expeditione sub auspicio regii imperii Belgici perfecta in regione Africae ad Congo flumen inferius collecta. *Ann. Soc. Ent. Belg.* 35 1-36.
- Schmiedeknecht, O. (1880a). Zwei neue Arten der Gattung *Chrysis* aus Thuringen. *Ent. Nachr.* 6 173-6.
- Schmiedeknecht, O. (1880b). Zwei neue Arten der Gattung *Chrysis* aus Thuringen. *Ent. Nachr.* 6 193-7.
- Schrank, F. (1804). *Fauna Boica etc.*, Bd. 3, Teil 2, 372 pp. J. W. Krull, Nürnberg.
- Schrortky, C. (1909). Himenopteros de Catamarca. *An. Soc. Cien. Arg.* 68 233-74.
- Schulthess, A. V. (1918). Neue Hymenopteren aus Madagaskar, gesammelt von Dr. K. Friedrichs. *Zs. wiss. Insek.* 1 97-101.
- Schulz, W. A. (1906). *Spolia Hymenopterologica*, 355 pp. A. Pape, Paderborn.
- Scopoli, J. A. (1763). *Entomologica Carniolica*, 36 + 420 + 2 pp. Trattner, Vindobonae.
- Semenov, A. (1891a). *Ellampus (Notozus) olgae* n. sp. *Vsesouiznoe Ent. obschesto Trudy* 25 383-5.
- Semenov, A. 1891b. *Pseudochrysis (Spintharis) virgo* sp. n. *Horae Soc. Ent. Ross.* 25 441-44.
- Semenov, A. (1892a). De genere *Pseudochrysis* m. *Horae Soc. Ent. Ross.* 26 480-91.
- Semenov, A. (1892b). *Revisio Hymenopterorum Musei Zoologici Academiae Caesareae Scien-*

- tiarum Petropolitanae, I: Genus *Cleptes* Latr. *Bull. Acad. Imper. Sci. St. Petersburg* (2)34 497-504.
- Semenov, A. (1892c). Chrysididarum species novae. *Bull. Acad. Imper. Sci. St. Petersburg* 35 71-95.
- Semenov, A. (1901). Chrysididarum species novae vel parum cognitae. *Ent. obozrenie. Rev. Russ. Ent.* 1 23-7.
- Semenov, A. (1902). Chrysididarum species novae vel parum cognitae. *Ent. obozrenie, II. Rev. Russ. Ent.* 2 168-71.
- Semenov, A. (1903). Chrysididarum species novae vel parum cognitae. *Ent. obozrenie, III. Rev. Russ. Ent.* 3 397-400.
- Semenov, A. (1910 (1909)). Chrysididarum species novae vel parum cognitae. *Ent. obozrenie. Rev. Russ. Ent.* 9 213-26.
- Semenov, A. (1912). Chrysididarum species novae vel parum cognitae. *Rev. Russ. Ent.* 12 177-201.
- Semenov, A. (1920). Revisio synoptica cleptidarum faunae rossicae. *Bull. Acad. Sci. Russ. Petrograd* 1920 303-88.
- Semenov, A. (1932). Supplementa ad Chrysididarum monographias ad A. G. Dahlbom (1854), A. Mocsáry (1889), R. du Buysson (1896) et H. Bischoff (1913) editas. *Horae Soc. Ent. Ross.* 41 1-52.
- Semenov, A. (1954a). See Semenov and Nikol'skaya (1954).
- Semenov, A. (1954b). Classification of the tribe Hedychridini Mocs. and description of new species. (IPST Engl. Transl.). *Trudy Zool. Inst. Akad. Nauk SSSR* 15 138-45.
- Semenov, A. (1967). New species of gold wasps. In, New species of invertebrate animals of the USSR and of adjacent lands. *Trans. Zool. Inst. Akad. Nauk SSSR* 43 118-84 [Engl. Transl.]
- Semenov, A. and Nikol'skaya, M. N. (1954). Hymenoptera (Chrysididae) of Tadzhikistan. (IPST Engl. transl.) *Trudy Zool. Inst. Akad. Nauk SSSR* 15 89-137.
- Shuckard, W. E. (1836). Description of the genera and species of the British Chrysididae. *Ent. Mag.* 4 156-77.
- Smith, F. (1851). Descriptions of some new species of British Hymenoptera. *Zoologist* for 1851, append. 1851 125.
- Smith, F. (1852). Descriptions of some hymenopterous insects captured in India, with notes on their economy, by E. T. Downes, Esq. etc. *Ann. Mag. Nat. Hist.* (2)9 44-50.
- Smith, F. (1858). Catalogue of the hymenopterous insects collected at Sarawak, Borneo; etc. *J. Proc. Linn. Soc. Zool., Lond.* 2 42-130.
- Smith, F. (1859). Catalogue of hymenopterous insects collected by Mr. A. R. Wallace. *J. Proc. Linn. Soc. Zool. Lond.* 3 4-27.
- Smith, F. (1860). Descriptions of new species of hymenopterous insects collected by Mr. A. R. Wallace at Celebes. *J. Proc. Linn. Soc. Zool. Lond.* 5 57-93.
- Smith, F. (1865). Descriptions of new species of hymenopterous insects from the islands of Sumatra, Sula, Gilolo, Salwatty and New Guinea, collected by Mr. A. R. Wallace. *J. Proc. Linn. Soc. Zool.* 8 61-94.
- Smith, F. (1874a). Description of new species of Tenthredinidae, Ichneumonidae, Chrysididae,

- Formicidae etc. of Japan. *Trans. Ent. Soc. Lond.* 1874 373–409.
- Smith, F. (1874b). A revision of the hymenopterous genera *Cleptes*, *Parnopes*, *Anthracias*, *Pyria* and *Stilbum*, with descriptions of new species of the genus *Chrysis* from North China and Australia. *Trans. Ent. Soc. Lond.* 1874 451–71.
- Smith, D. R. (1962). Parasites reared from a species of *Neodiprion* found on Douglas-fir in Idaho. *Pan-Pac Ent.* 38 189.
- Snodgrass, R. E. (1910). The thorax of the Hymenoptera. *Proc. U. S. Natl. Mus.* 39 37–91.
- Spaček, K. (1935). Zoogeographische und oekologische Beiträge zur Erforschung der Chrysididenfauna in der Tschechoslowakei. *Acta Soc. Ent. Ceck.* 32 117–20.
- Spinola, M. (1805). *Fauna Liguriaae Fragmenta*. p. 14. P. Cajetani, Genoa.
- Spinola, M. (1806). *Insectorum Liguriaae*. Vol. 1, xvii + 160 pp. Y. Gravier, Genoa.
- Spinola, M. (1807–1808). *Insectorum Liguriaae*. Vol. 2, v+262 pp. Y. Gravier, Genoa.
- Spinola, M. (1838). Compte rendu des hyménoptères recueillis par M. Fischer pendant son voyage en Egypte, et communiqués par M. le Docteur W. A. M. Spinola. *Ann. Soc. Ent. France* 7 437–57.
- Spinola, M. (1840). Recueillis a Cayenne en 1839 par M. Leprieur, pharmacien de la marine royale. *Ann. Soc. Ent. France* 9 129–204.
- Spinola, M. (1843). Sur quelques Hyménoptères peu connus, recueillis en Espagne, pendant l'année 1842, par M. Victor Ghiliani, voyageur-naturaliste. *Ann. Soc. Ent. France* (2) 111–129.
- Spinola, M. (1851). In *Historia fisica y politica de Chile. Zoologia*, (ed. C. Gay), Vol. 6, pp. 404–13. Claudio Gay Publ., Paris.
- Spooner, G. M. (1948). The British species of psenine wasps. *Trans. R. Ent. Soc. Lond.* 99 129–172.
- Stöcklein, F. (1950). Eine neue goldwespe aus den bayer. Alpen. *Ent. Arb. München* 1 283–4.
- Strand, E. (1929). Zoological and palaeontological nomenclatorial notes. *Acta Univ. Latviensis, Riga* 20 1–29.
- Sugihara, Y. (1932). *Insect World, Gifu* 36: 423.
- Sulzer, J. J. (1776). *Abgekürzte Geschichte der Insecten, nach dem Linaeischen System*. Bd. 4, Teill, 274 pp. H. Steiner, Winterthur.
- Taylor, L. H. (1924). Chrysididae from lower California. *Proc. Calif. Acad. Sci.* (4) 13 325–32.
- Telford, A. D. (1964). The nearctic *Parnopes* with an analysis of the male genitalia in the genus. *Univ. Calif. Pub. Ent.* 36 1–42.
- Thomson, C. G. (1870). Öfversigt af de i Sverige funna arter af Slägtet *Chrysis* Lin. *Opus. Ent.* 2 101–8.
- Tosawa, N. (1932). Über eine unbeschriebene und vier für Japan neue Goldwespen. *Trans. Kansai Ent. Soc.* 2 35–6.
- Tosawa, N. (1940). Two new species of *Cleptes*—the first record of the family from Japan proper. *Trans. Kansai Ent. Soc.* 10(2) 1–5.
- Tosawa, N. (1942). On Chrysididae (in Japanese). *Bull. Takarazuka Insectarium, Kohama* 26 1–14.



- Tournier, H. (1877). Addition aux Chrysidés du bassin du Léman. *Petites Nouv. Ent.* 165 105–6.
- Tournier, H. (1878). Nouvelle addition aux Chrysidés du bassin du Léman. *Mitt. Schweiz. Ent. Ges.* 5 305–10.
- Tournier, H. (1879). Descriptions d'Hyménoptères nouveau appartenant à la famille des chrysidés. *Ann. Soc. Ent. Belg.* 22 87–100.
- Tournier, H. (1889). Descriptions d'Hyménoptères nouveaux appartenant à la famille des Chrysidés. *Soc. Ent.* 3 153, 161, 169, 185.
- Tournier, H. (1890). Title as above *Soc. Ent.* 4 1, 15, 23.
- Trautmann, G. and Trautmann, W. (1919). Die Goldwespenfauna Frankens. *Zs. Wiss. Insekt. Berlin* 15, 30–6.
- Trautmann, W. (1916). Eine neue Goldwespenfauna Frankens. *Intern. Ent. Zs. Guben* 10 93–4.
- Trautmann, W. (1920). Zwei neue palaarktische Species aus dem genus *Hedychridium*. *Neue Beitr. Syst. Insekt. Berlin* 1 150.
- Trautmann, W. (1921). Neue palaarktische Goldwespen. *Neue Beitr. Syst. Insekt. Berlin* 2, 31–2, 35–6.
- Trautmann, W. (1922). Untersuchungen an einigen Goldwespenformen. *Deutsche Ent. Zs. Berlin* 1922, 219–23, 321–2.
- Trautmann, W. (1923). Untersuchungen an einigen Goldwespenformen. *Deutsche Ent. Zs.* 5 243–4.
- Trautmann, W. (1926a). Untersuchungen an einigen Goldwespenformen. *Ent. Zs. (Frankfurt)* 40 4–12.
- Trautmann, W. (1926b). Beitrag zur Kenntnis Aegyptischer chrysididen. *Bull. R. Soc. Ent. Egypt* 19 90–6.
- Trautmann, W. (1927). *Die Goldwespen Europas*. 194 pp. G. Uschmann, Weimar.
- Trautmann, W. (1928). Nachtrag zu den Goldwespen Europas. *Ent. Mitt. Berlin* 17 29–30.
- Trautmann, W. (1929). Beitrag zur Kenntnis der Goldwespen Cyperns. *Konowia* 8 154–8.
- Tsuneki, K. (1947). Chrysididae from north China and inner Mongolia. *Mushi* 17 43–60.
- Tsuneki, K. (1948). Chrysididae from Shansi, north China. *Mushi* 18, 115–28.
- Tsuneki, K. (1950). Descriptions of new species and subspecies of the Chrysididae from East Asia. *Mushi* 21 61–81.
- Tsuneki, K. (1952). Two new species of Chrysididae from Japan and Korea. *Ins. Matsum.* 18, 31–3.
- Tsuneki, K. (1953a). Chrysididae of Manchuria. *Mushi* 25 53–61.
- Tsuneki, K. (1953b). Chrysididae of Korea. *Kontyû* 20 22–8.
- Tsuneki, K. (1954). Descriptions and records of wasps of the families Chrysididae and Sphecidae from Japan. *Mem. Fac. Lib. Arts, Fukui Univ.* (ser. 2, Nat. Sci.) 4 37–54.
- Tsuneki, K. (1959). Contributions to the knowledge of the Cleptinae and Pseninae faunas of Japan and Korea. *Mem. Fac. Lib. Arts, Fukui Univ.* (ser. 2, Nat. Sci.) 9, 1–78.
- Tsuneki, K. (1961). Chrysididae collected by the Osaka City University Biological Expedition to southeast Asia, 1957–1958. *Nat. Life Southeast Asia* 1, 367–82.
- Tsuneki, K. (1963a). *Chrysis* of eastern Asia. *Etizenia* 3, 1–9.
- Tsuneki, K. (1963b). Chrysididae and Sphecidae from Thailand. *Etizenia* 4 1–3.

- Tsuneki, K. (1963*c*). Some aculeate Hymenoptera from Malaya. *Ins. Matsum.* 26, 99–103.
- Tsuneki, K. (1966). Notes on some Chrysididae and Sphecidae in the collection of the Osaka Museum of Natural History with descriptions of three new species. *Bull. Osaka Mus. Nat. Hist.* 19 19–28.
- Tsuneki, K. (1970*a*). Bemerkungen und Beschreibungen über den Japanischen Heteronychinen. *Life Study (Fukui)* 14 27–34.
- Tsuneki, K. (1970*b*). Ein Beitrag zur goldwespen-fauna Formosas. *Etizenia* 49, 1–21.
- Tsuneki, K. (1975). New cuckoo wasps found in Japan. *Kontyû* 43, 29–35.
- Tsuneki, K. (1977). Descriptions of new species and subspecies of Chrysididae from Japan. *Akitu* (new series) 9 1–4.
- Tsuneki, K. (1979). Sphecidae and Chrysididae collected by Dr. K. Baba in northern part of Japan proper and Hokkaido, with descriptions of two new species. In *Ins. Niigata Prefecture* pp. 9–14. K. Baba, Niigata.
- Tsuneki, K. (1986). New species and subspecies of the aculeate Hymenoptera from east Asia, with some synonyms, specific remarks and distributional data. *Spec. Pub. Japan. Hym. Assoc.* 32 1–60.
- Uchida, T. (1925). A list of known species of the Korean Hymenoptera collected in 1922, and their geographical distributions. *Insect World, Gifu, Japan* 29 328–37, 366–73 (in Japanese).
- Uchida, T. (1926). Ueber Bethylidae Japans. *Zool. Mag. Tokyo* 38 181–6.
- Uchida, T. (1927). Eine Uebersicht der Chrysididen Japans und mit den beschreibungen der neuen arten und varietæten. *Ins. Matsum.* 1, 149–57.
- Uchida, T. (1933). Hymenoptera. Chrysididae. *Cat. Jap. Insectes.* Fasc. 2, 8 pp. Tokyo.
- Valkeila, E. (1971). Two new North European species of the genus *Chrysis*. *Ent. Tidsk.* 92 82–6.
- Viereck, H. L. (1903 (1902)). Hymenoptera of Beulah, New Mexico. *Trans. Amer. Ent. Soc.* 29 43–100.
- Viereck, H. (1904). The North American cuckoo wasps of the genus *Parnopes*. *Trans. Amer. Ent. Soc.* 30 245–50.
- Viereck, H. (1906). Notes and descriptions of Hymenoptera from the western United States. *Trans. Amer. Ent. Soc.* 32 173–247.
- Villers, C. J. de. (1789). *Caroli Linnaei entomologia, etc.*, Vol. 3, 657 pp. Piestre et Delamolliere, Lugduni.
- Walker, F. (1866*a*). Characters of a new genus and species of Chalcidites. *Trans. Ent. Soc. Lond.* 2 441–2.
- Walker, F. (1866*b*). In *The naturalist in Vancouver Island and British Columbia*, (ed. J. K. Lord), Vol. 2, Appendix, 375 pp. R. Bentley, London.
- Walker, F. (1871). *List of Hymenoptera collected by J. K. Lord, 827 Esq., in the neighbourhood of the Red Sea and in Arabia*. E. W. Janson, London, pp. 6–9.
- Wallace, A. R. (1876). *The geographical distribution of animals*. Vol. 1 xv + 503 pp., Vol. 2, viii + 607 pp. Harper and Bros., New York.
- Wesmael, C. (1839). *Notice sur les Chrysidés de Belgique*. *Bull. Acad. R. Sci. Belle-Lettres Bruxelles* 4 167–77.

- Westwood, J. O. (1842). Natural history of the insects of India by E. Donovan. New revised edition. vi + 102 pp., 58 pls. H. G. Bohn, London.
- Westwood, J. O. (1874). *Thesaurus entomologicus oxoniensis*, xxi+205 pp.+40 pls. Clarendon Press, Oxford.
- Wickwar O. S. (1908). Hymenoptera new to Ceylon, with descriptions of new species. *Spolia Zeylanica* 5 19, 115–22.
- Yamada, Y. (1987a). Characteristics of the oviposition of a parasitoid *Chrysis shanghaiensis*. *Appl. Ent. Zool.* 22 456–64.
- Yamada, Y. (1987b). Factors determining the rate of parasitism by a parasitoid with a low fecundity, *Chrysis shanghaiensis*. *J. Anim. Ecol.* 56 1029–42.
- Zimmermann, H. (1937). Ueber die Verbreitung und Formenbildung der Gattung *Stilbum* Spin. *Archiv. f. Naturges.* Leipzig 6 645–62.
- Zimmermann, H. (1938). Eine neue Goldwespe aus dem oestlichen Mittelmeergebiet (*Gonochrysis mochii* nov.). *Bull. Soc. R. Ent. Egypt* 21 2–4.
- Zimmermann, H. (1940). Zwei neue Goldwespen aus Aegypten. *Bull. Soc. Fouad Ent.* 1940 31–3.
- Zimmermann, H. (1944). *Chrysis kaufeli*, eine neue Goldwespe aus den Ostalpen. *Ann. Nat. Mus., Wien* 53 82–8.
- Zimmermann, H. (1950). Zwei neue Arten der Gattung *Spintharis* Dahlb. aus Nordafrika. *Ann. Nat. Mus., Wien* 57 314–23.
- Zimmermann, H. (1952). S. Missione biologica Sagan-Omo diretta del Prof. Edoardo Zavattari. Drei neue Goldwespen. *Ann. Mus. Storia Nat. Genova* 65 358–63.
- Zimmermann, H. (1954). *Chrysis procera* nov. spec., eine neue Goldwespe aus der Verwandtschaft der *Chrysis* (*Holochrysis*) *simplex*. *Zs. Wiener Ent. Ges., Vienna* 39 264–7.
- Zimmermann, H. (1956). Contribution a l'étude des chrysidides de Madagascar. *Mem. Inst. Sci. Madagascar* 7 141–65.
- Zimmermann, H. (1959). Die Artengruppen der *Chrysis pallidicornis* Spin. und der *Chrysis xanthocera* Klug. *Deutsche Ent. Zs.* 6 8–33.
- Zimmermann, H. (1961a). Neue Goldwespenfunde in Österreich. *Zs. Arbeitsgem. österr. Ent.* 13 83–4.
- Zimmermann, H. (1961b). Zweiter beitrage zur kenntnis der Chrysididen Madagascars. *Mem. Inst. Sci. Madagascar* (ser. E) 12 297–321.
- Zimmermann, H. (1962). Ergebnisse der Zoologischen Nubien- Expedition 1962. *Ann. Nat. Mus., Wien* 66 413–17.
- Zimmermann, H. (1963). Ergebnisse der Zoologischen Nubien- expedition 1962. *Ann. Nat. Mus., Wien* 66 413–17.
- Zirngiebl, L. (1953). Zur Wespen-fauna der Pfalz. *Mitt. Pollichia, Durkheim* (3)1 160–79.





# INDEX OF CHRYSIDID NAMES

(Valid taxonomic names are indicated by an asterisk, \*).

- aaroni* (Bodenstein) (*Elampus*) 172  
*aaroni* Mocsáry (*Chrysis*) 440  
*abbreviaticornis* Buysson (*Chrysis*) 390  
*abdominale* Edney (*Hedychrum*)\* 210  
*abdominalis* (Buysson) (*Pseudomalus*)\* 264  
*abdominata* Linsenmaier (*Chrysis*) 465  
*abeillei* Buysson (*Cleptes*) 58  
*abeillei* (Buysson) (*Holophris*)\* 224  
*abeillei* Frey-Gessner (*Chrysis*) 468  
*abeillei* Gribodo (*Chrysis*)\* 379  
*aberrans* Mocsáry (*Chrysis*)\* 379  
*abruptus* Semenov (*Cephaloparnops*) 578  
*abuensis* Nurse (*Chrysis*)\* 379  
*abyssinica* (Radoszkowski) (*Praetochrysis*) 534  
*abyssinicum* Mocsáry (*Hedychrum*)\* 210  
*abyssinicus* (Mocsáry) (*Holophris*)\* 224  
*Acanthochrysis* Haupt 316  
*acanthophora* (Bischoff) (*Chrysis*)\* 379  
*Acanthospintharis* Balthasar 553  
*acceptabilis* Radoszkowski (*Chrysis*) 428  
*acclinata* (Linsenmaier) (*Pleurochrysis*)\* 524  
*acheron* Mocsáry (*Chrysis*) 400  
*Achrysis* Semenov 548  
*Acrotoma* Mocsáry 181  
*Actineuchrum* Semenov 181  
*Actinochrysis* Haupt 316  
*acuta* (Brèthes) (*Pleurochrysis*)\* 524  
*adamantina* Mocsáry (*Chrysis*) 447  
*adelaidanus* (Linsenmaier) (*Primeuchroeus*) 542  
*adelaidensis* (Bischoff) (*Primeuchroeus*) 543  
*adelaidensis* Buysson (*Chrysis*) 463  
*Adelopyga* Kimsey\* 159, 161  
*Adelpha* Schulz 82  
*Adelphe* Mocsáry\* 80, 82  
*adenica* Mocsáry (*Chrysis*) 455  
*adentis* (Zirngiebl) (*Trichrysis*) 571  
*admiranda* (Mocsáry) (*Pentachrysis*)\* 521  
*admissa* Buysson (*Chrysis*) 457  
*adolescentula* Semenov (*Chrysis*) 453  
*adolphi* (Mocsáry) (*Pleurochrysis*) 527  
*adonis* Zimmermann (*Chrysis*)\* 379  
*adulterina* Abeille (*Chrysis*) 399  
*advena* Mocsáry (*Chrysis*) 400  
*adventicium* Zimmermann (*Hedychridium*)\* 186  
*aegle* Semenov (*Chrysis*)\* 379  
*aegyptiaca* Buysson (*Chrysis*) 439  
*aegyptiacum* Buysson (*Hedychridium*)\* 186  
*aello* Semenov and Nikol' skaya (*Chrysis*)\* 379  
*aemula* (Linsenmaier) (*Ipsiura*) 510  
*aenea* Krombein (*Protadelphe*)\* 15  
*aeneibasalis* Linsenmaier (*Chrysis*) 414  
*aeneiceps* Ducke (*Amisega*)\* 92  
*aeneipes* Tournier (*Chrysis*) 468  
*aeneopaca* Linsenmaier (*Chrysis*) 434  
*aenescens* Mocsáry (*Chrysis*) 425  
*aeneum* Trautmann (*Hedychridium*) 188  
*aeneus* (Fabricius) (*Omalus*)\* 245  
*aeneus* (Trautmann) (*Pseudomalus*) 270  
*aenigmatica* (Bridwell) (*Obenbergerella*)\* 131  
*aequalis* (Bischoff) (*Chrysis*) 478  
*aequicolor* Linsenmaier (*Chrysis*) 413  
*aequinoctialis* Dahlbom (*Chrysis*) 425  
*aequinoctialis* (Ducke) (*Elampus*)\* 166  
*aeraria* Mocsáry (*Chrysis*)\* 379  
*aerata* (Dahlbom) (*Chrysur*) 497  
*aerolum* Buysson (*Hedychridium*)\* 186  
*aereum* Tsuneki (*Hedychrum*) 220  
*aerosus* Förster (*Cleptes*)\* 58  
*aerosus* Tournier (*Cleptes*) 58  
*aeruginosa* Dahlbom (*Chrysis*) 389  
*aeruginosum* (Mocsáry) (*Hedychridium*)\* 186  
*aestiva* Dahlbom (*Chrysis*)\* 379  
*aestuans* Mocsáry (*Chrysis*) 431  
*aethiopica* Mocsáry (*Chrysis*)\* 379  
*afer* Lucas (*Cleptes*)\* 58  
*afer* (Mocsáry) (*Philoctetes*)\* 254  
*affinis* (Lucas) (*Chrysur*) 485  
*affinis* (Schenck) (*Elampus*) 170  
*affinis* (Wesmael) (*Omalus*) 245  
*affinissima* (Ducke) (*Ipsiura*)\* 508  
*affinissimum* Bischoff (*Hedychrum*) 212  
*affinita* Linsenmaier (*Chrysis*) 416  
*afghana* Balthasar (*Chrysis*) 478  
*afghanica* Linsenmaier (*Chrysis*)\* 380  
*africana* (Buysson) (*Praetochrysis*)\* 531  
*africana* (Mocsáry) (*Chrysidea*) 314  
*africanum* Kimsey (*Hedychridium*)\* 186  
*africanum* Buysson (*Chrysis*) 466  
*Afroseg* Krombein\* 78, 86  
*Afrospinolia* Linsenmaier 561  
*agadirana* (Linsenmaier) (*Chrysur*) 486  
*agadirensis* (Buysson) (*Spintharina*)\* 556  
*agadirensis* (Linsenmaier) (*Chrysur*) 486  
*agilis* Smith (*Chrysis*)\* 380  
*agitata* Linsenmaier (*Chrysis*) 383  
*aglaja* Mocsáry (*Chrysis*) 393  
*aglaspidulus* Melander and Brues (*Parnopes*) 585  
*agnata* Zimmermann (*Chrysidea*)\* 313  
*abeneum* (Dahlbom) (*Hedychridium*)\* 186  
*alabamensis* (Mocsáry) (*Exochrysis*) 503  
*alaica* Mocsáry (*Chrysis*)\* 380  
*albanica* Trautmann (*Chrysis*)\* 380  
*albata* (Edney) (*Spintharina*)\* 556  
*albibasalis* (Mocsáry) (*Ipsiura*) 509  
*albicornis* Bohart (*Argochrysis*)\* 291  
*albipennis* (Dahlbom) (*Spinolia*) 552  
*albipennis* Mocsáry (*Elampus*)\* 166

- albipilis* Mocsáry (*Chrysis*)\* 380  
*albitarsis* Mocsáry (*Chrysis*)\* 380  
*albofacies* (Linsenmaier) (*Exochrysis*)\* 502  
*albolimbatus* (Ducke) (*Holophris*)\* 224  
*albomarginata* (Mocsáry) (*Pleurochrysis*) 527  
*alboris* Kimsey (*Argochrysis*)\* 291  
*alces* (Linsenmaier) (*Primeuchroeus*)\* 540  
*alcione* Shuckard (*Chrysis*) 420  
*alconost* Semenov (*Spinolia*) 553  
*alecto* Edney (*Chrysis*)\* 380  
*alexandri* (Buysson) (*Spintharina*) 558  
*alexii* Semenov (*Hedychrum*)\* 210  
*alfieri* (Trautmann) (*Chrysis*)\* 380  
*alfierii* Trautmann (*Hedychridium*)\* 187  
*alfkenella* Buysson (*Chrysis*) 405  
*alfkeni* (Ducke) (*Pleurochrysis*)\* 524  
*algira* (Mocsáry) (*Spinolia*)\* 551  
*algrum* (Mocsáry) (*Hedychridium*)\* 187  
*alia* Linsenmaier (*Chrysis*) 380  
*alicantina* Mercet (*Chrysis*) 468  
*aliena* (Mocsáry) (*Caenochrysis*) 304  
*Alieniscus* Benoit\* 79, 88  
*Alienus* Bridwell 130  
*alienus* Patton (*Cleptes*)\* 59  
*aliquanta* (Linsenmaier) (*Chrysura*) 493  
*aliunda* Linsenmaier (*Chrysis*) 436  
*allabora* Linsenmaier (*Chrysis*)\* 380  
*allectoris* Bohart (*Chrysis*)\* 380  
*allegata* (Linsenmaier) (*Chrysura*) 492  
*Allochrysis* Semenov\* 383, 286  
*Allocoelia* Mocsáry\* 273  
*allotria* (Linsenmaier) (*Pleurochrysis*)\* 525  
*alluaudi* Buysson (*Chrysis*) 415  
*alluaudi* Buysson (*Hedychrum*)\* 210  
*alma* Semenov (*Chrysis*)\* 381  
*almasyana* (Mocsáry) (*Haba*)\* 177  
*almeriana* Linsenmaier (*Chrysis*) 426  
*Alocochrysis* Haupt 568  
*alpestre* Semenov (*Hedychridium*)\* 187  
*alta* Bohart (*Chrysis*)\* 381  
*altaiica* Mocsáry (*Chrysis*)\* 381  
*alternans* Dahlbom (*Chrysis*)\* 381  
*alterum* Lepeletier (*Hedychrum*) 217  
*alticata* Bohart (*Chrysis*)\* 381  
*alticola* Krombein (*Colocar*)\* 106  
*alticola* Mocsáry (*Chrysis*) 381  
*alticola* (Semenov) (*Chrysura*)\* 486  
*altivolans* Mocsáry (*Chrysis*) 406  
*alvarengai* Kimsey (*Anadelphe*)\* 97  
*alveata* Bohart (*Ceratochrysis*) 310  
*amabile* Cockerell (*Hedychridium*)\* 187  
*amabilis* (Mocsáry) (*Brugmoia*) 297  
*amala* Rohwer (*Chrysis*)\* 381  
*amamiensis* (Tsuneki) (*Trichrysis*) 574  
*amaniense* Bischoff (*Hedychrum*)\* 211  
*amasina* Mocsáry (*Chrysis*)\* 381  
*amatum* Nurse (*Hedychridium*)\* 187  
*amaurotica* (Linsenmaier) (*Ipsiura*) 511  
*amazonica* (Mocsáry) (*Caenochrysis*)\* 300  
*ambigua* Radoszkowski (*Chrysis*)\* 381  
*ambiguus* Dahlbom (*Elampus*)\* 166  
*ambiguus* Eversmann (*Elampus*) 167  
*ambiguus* (Linsenmaier) (*Primeuchroeus*)\* 540  
*ameghinoi* (Brèthes) (*Pleurochrysis*)\* 525  
*americanus* Cresson (*Cleptes*) 59  
*americanus* Provancher (*Cleptes*) 62  
*amethystinum* (Fabricius) (*Stilbum*) 567  
*Amisega* Cameron\* 80, 90  
*amneris* Balthasar (*Chrysis*)\* 381  
*amoena* (Balthasar) (*Spintharina*) 558  
*amoena* (Eversmann) (*Pentachrysis*)\* 521  
*amoena* Mocsáry (*Holopyga*)\* 228  
*amoenula* Dahlbom (*Holopyga*)\* 228  
*amoenula* (Mocsáry) (*Praestochrysis*)\* 531  
*amphinome* Zimmermann (*Chrysis*)\* 382  
*ampliata* (Linsenmaier) (*Chrysura*) 496  
*amulana* Mocsáry (*Chrysis*)\* 382  
*amurensis* Semenov (*Chrysis*)\* 382  
*Anachrysis* Krombein\* 80, 93  
*Anadelphe* Kimsey\* 81, 95  
*anakaratrae* Zimmermann (*Hedychrum*)\* 211  
*anale* (Dahlbom) (*Hedychridium*)\* 187  
*analís* Spinola (*Chrysis*)\* 382  
*anatolica* (Trautmann) (*Chrysura*) 491  
*anceps* Gribodo (*Chrysis*) 425  
*anceyi* Buysson (*Chrysis*)\* 382  
*anceyi* Buysson (*Cleptes*)\* 59  
*ancilla* (Buysson) (*Pleurochrysis*)\* 525  
*andalusicum* Trautmann (*Hedychridium*) 201  
*andinus* (Cameron) (*Omalus*)\* 247  
*andradei* Linsenmaier (*Chrysis*)\* 382  
*andreaana* Buysson (*Chrysis*) 434  
*andreevi* Semenov and Nikol'skaya (*Chrysis*)\* 382  
*andrei* (Mocsáry) (*Exallopyga*) 174  
*andreevii* Buysson (*Hedychridium*)\* 187  
*andromeda* Gribodo (*Chrysis*)\* 382  
*angolensis* Radoszkowski (*Chrysis*)\* 383  
*anguifera* (Linsenmaier) (*Caenochrysis*) 302  
*angularis* Mocsáry (*Chrysis*) 443  
*angulata* Dahlbom (*Chrysis*) 457  
*angulatum* Edney (*Hedychridium*)\* 187  
*angulimacula* (Linsenmaier) (*Pleurochrysis*) 525  
*angustata* Mocsáry (*Chrysis*)\* 383  
*angustata* Schenck (*Holopyga*) 228  
*angustatus* (Mocsáry) (*Elampus*) 170  
*angustella* Bohart (*Chrysis*)\* 383  
*angusticollis* (Mocsáry) (*Chrysura*)\* 486  
*angustifrons* Abeille (*Chrysis*)\* 383  
*angustiradialis* (Linsenmaier) (*Caenochrysis*) 304  
*angustula* Mocsáry (*Chrysis*) 383  
*angustula* Schenck (*Chrysis*)\* 384  
*anisitsi* (Bischoff) (*Ipsiura*) 511  
*anisitsii* (Brèthes) (*Ipsiura*) 511  
*anisomorphae* Krombein (*Adelphe*)\* 85  
*annamensis* Mocsáry (*Chrysis*)\* 384  
*annamita* Mocsáry (*Chrysis*) 396  
*annulata* Buysson (*Chrysis*)\* 384  
*annulipes* (Mocsáry) (*Argochrysis*) 285, 292  
*anoma* Bohart (*Chrysis*)\* 384  
*anomala* (Block) (*Parnopes*) 586  
*anomala* Kimsey (*Kryptosega*)\* 118  
*anomala* Mocsáry (*Chrysis*) 384  
*anomalus* (Förster) (*Philocetes*) 258  
*anonyma* Mocsáry (*Chrysis*) 384

- antakyensis* Linsenmaier (*Chrysis*)\* 384
- antakyensis* Linsenmaier (*Cleptes*)\* 59
- antennalis* Kieffer (*Cladobethylus*)\* 104
- antennalis* Kimsey (*Adelpe*)\* 85
- antennalis* (Mocsáry) (*Chrysis*)\* 384
- antennata* Fouts (*Loboscelidia*)\* 146
- antennata* Mocsáry (*Chrysis*)\* 384
- antennatum* Kimsey (*Hedychridium*)\* 187
- anthea* Zimmermann (*Chrysis*) 475
- Anthraxias* Klug 273
- anthracinus* (Buysson) (*Pseudomalus*) 266
- antigai* Buysson (*Hedychrum*) 217
- antiope* Zimmermann (*Chrysidea*)\* 313
- antiqua* (Brauns) (*Chrysis*)\* 384
- antyga* Bohart (*Ceratochrysis*)\* 308
- aperta* Buysson (*Chrysis*) 425
- apbrodite* Balthasar (*Chrysis*) 439
- apiata* Buysson (*Chrysis*) 421
- apicalis* Radoszkowski (*Chrysis*)\* 384
- apicalis* Walker (*Parnopes*) 585
- apicata* Uchida (*Chrysis*) 478
- apiculata* (Mocsáry) (*Spintharina*)\* 556
- apiculatum* (Edney) (*Parachrum*)\* 251
- apiculatus* (Mocsáry) (*Primeuchroeus*) 541
- aponis* Bohart (*Chrysis*)\* 384
- appendicinus* Abeille (*Omalus*) 246
- appendiculata* (Buysson) (*Spintharina*)\* 556
- appliata* Linsenmaier (*Holopyga*) 230
- apposita* (Linsenmaier) (*Caenochrysis*)\* 300
- apricans* Gravenhorst (*Chrysis*) 412
- apricans* Smith (*Chrysis*) 385
- apricata* Bohart (*Chrysis*)\* 385
- apiata* (Linsenmaier) (*Caenochrysis*) 301
- aptum* Edney (*Hedychrum*) 215
- aptus* (Linsenmaier) (*Primeuchroeus*) 542
- apuda* (Linsenmaier) (*Caenochrysis*)\* 300
- aquilus* Kimsey (*Cladobethylus*)\* 104
- arabica* Mocsáry (*Chrysis*)\* 385
- arabs* (Mocsáry) (*Cephaloparnops*) 578
- arachne* Mocsáry (*Chrysis*)\* 385
- araratica* Radoszkowski (*Chrysis*)\* 385
- araraticus* (Radoszkowski) (*Holophris*)\* 224
- araxana* Mocsáry (*Chrysis*)\* 385
- archboldi* Kimsey (*Chrysis*)\* 385
- arcifera* (Bischoff) (*Chrysis*) 478
- Arctochrysis* Haupt 480
- ardens* (Coquebert) (*Hedychridium*)\* 187
- ardens* (Mocsáry) (*Pseudospinolia*) 546
- ardoris* Kimsey (*Pseudospinolia*)\* 546
- areata* Mocsáry (*Chrysis*)\* 385
- arenicola* Kimsey (*Minymischa*)\* 240
- areolata* (Mocsáry) (*Caenochrysis*)\* 300
- arethusa* (Balthasar) (*Chrysura*) 491
- argentum* Kimsey (*Hedychridium*)\* 188
- argentina* (Brethes) (*Neochrysis*)\* 514
- argentina* Buysson (*Gaullea*)\* 505
- argentinum* Buysson (*Hedychridium*)\* 188
- Argochrysis* Kimsey and Bohart\* 288
- ariadne* Mocsáry (*Chrysis*) 464
- aridula* Bohart (*Chrysis*)\* 385
- aridula* Krombein (*Isegama*)\* 117
- aridulus* Krombein (*Cladobethylus*)\* 104
- arietinum* Bohart (*Hedychridium*)\* 188
- arizonensis* Kimsey (*Neochrysis*)\* 514
- arizonensis* Viereck (*Parnopes*) 585
- arizonica* Bohart (*Chrysis*)\* 385
- armata* (Lepeletier) (*Chrysis*) 433
- armata* (Mocsáry) (*Caenochrysis*)\* 300
- armata* (Trautmann) (*Chrysura*) 494
- armata* (Trautmann) (*Spintharina*) 558
- armena* Dahlbom (*Chrysis*) 446
- armilla* Bohart (*Argochrysis*)\* 291
- arnoldi* Benoit (*Alieniscus*)\* 90
- arnoldi* Brauns (*Chrysis*)\* 385
- arnoldi* (Brauns) (*Spintharina*)\* 556
- arnoldi* Edney (*Hedychrum*) 217
- arnoldi* Edney (*Hedychridium*)\* 188
- arnoldi* Semenov (*Chrysis*) 381
- arnoldii* Semenov (*Chrysis*) 385
- arnoldina* Bohart (*Chrysis*)\* 385
- arrestans* Nurse (*Chrysis*)\* 385
- arrogans* (Mocsáry) (*Pentachrysis*)\* 521
- artifex* (Smith) (*Chrysura*) 495
- artifrons* (Edney) (*Brugmoia*) 297
- artigena* Lin (*Loboscelidia*) 147
- arushana* (Mocsáry) (*Trichrysis*) 573
- asabinai* Tsuneki (*Chrysis*)\* 385
- ascoensis* Linsenmaier (*Chrysis*) 453
- asensioi* (Mingo) (*Chrysidea*)\* 313
- ashabadensis* Radoszkowski (*Chrysis*)\* 386
- asiana* Kimsey (*Loboscelidia*)\* 146
- asianus* Kimsey (*Cleptes*)\* 59
- asiatica* Linsenmaier (*Chrysis*) 410
- asiatica* Mocsáry (*Chrysis*) 402
- asiatica* Radoszkowski (*Chrysis*)\* 386
- asiatica* (Trautmann) (*Chrysis*) 468
- asiatica* Trautmann (*Holopyga*) 229
- asiatica* (Trautmann) (*Pseudospinolia*) 547
- asmarana* Mocsáry (*Chrysis*) 381
- aspera* (Brullé) (*Holopyga*) 236
- aspera* (Brullé) (*Trichrysis*)\* 571
- aspreddinis* Bohart (*Chrysis*)\* 386
- assabensis* Mocsáry (*Chrysis*) 430
- assaensis* Kurian (*Cleptes*) 59
- assamensis* Mocsáry (*Chrysis*) 447
- assamensis* Mocsáry (*Elampus*)\* 166
- assimilis* (Dahlbom) (*Chrysidea*) 314
- astarte* Balthasar (*Chrysis*) 417
- astarte* (Semenov) (*Brugmoia*)\* 295
- asterope* Shuckard (*Chrysis*) 420
- australia* Bohart (*Chrysis*)\* 386
- astuta* Mocsáry (*Chrysis*) 426
- atacamae* Kimsey (*Pleurochrysis*)\* 525
- atechka* Buysson (*Chrysis*)\* 386
- athalia* Balthasar (*Chrysis*) 411
- atlantea* Linsenmaier (*Chrysis*) 434
- atlanticus* Krombein (*Parnopes*) 586
- atlasia* Linsenmaier (*Chrysis*) 475
- Atopogyne* Krombein 97
- Atoposega* Krombein\* 81, 97
- atra* Krombein (*Loboscelidia*)\* 146
- atrachypaeta* Linsenmaier (*Chrysis*)\* 386
- atrata* (Bischoff) (*Chrysis*)\* 386
- atrata* (Kiss) (*Chrysidea*) 314
- atrata* (Trautmann) (*Chrysis*) 432
- atratum* Linsenmaier (*Hedychridium*)\* 188
- atratus* (Mocsáry) (*Omalus*) 247
- atrypa* Bohart (*Chrysis*)\* 386



- attenuatum* (Mocsáry) (*Hedychridium*)\* 188  
*audax* (Edney) (*Praestochrysis*)\* 531  
*audouinii* Blanchard (*Chrysis*)\* 386  
*aulica* Mocsáry (*Chrysis*) 439  
*aulicum* Spinola (*Hedychrum*) 217  
*aurata* (Bischoff) (*Chrysidea*)\* 313  
*auratum* Bischoff (*Hedychridium*) 201  
*auratum* Trautmann (*Stilbum*) 567  
*auratus* Dahlbom (*Cleptes*) 64  
*auratus* (Linnaeus) (*Pseudomalus*)\* 265  
*auratus* (Panzer) (*Cleptes*) 64  
*aureicollis* Mocsáry (*Hedychrum*)\* 211  
*aureicollis* (Abeille) (*Pseudospinolia*)\* 547  
*aurelia* Balthasar (*Chrysis*)\* 386  
*aureola* Förster (*Chrysis*) 407  
*aureomaculata* Abeille (*Holopyga*) 230  
*aureomaculata* (Bischoff) (*Chrysis*) 394  
*aureomaculata* Dahlbom (*Chrysis*)\* 386  
*auriceps* Mader (*Chrysis*)\* 387  
*aurichalcea* (Lepeletier) (*Chrysura*) 488  
*aurichalcea* Provancher (*Chrysis*) 452  
*aurifascia* Brullé (*Chrysis*)\* 387  
*aurifera* Linsenmaier (*Chrysis*) 421  
*auriflamma* Bohart (*Ceratochrysis*)\* 308  
*aurifrons* (Dahlbom) (*Chrysura*) 491  
*aurimacula* Mocsáry (*Chrysis*)\* 387  
*aurimaculifrons* Linsenmaier (*Chrysis*)\* 387  
*aurinotata* Linsenmaier (*Chrysis*) 454  
*auripes* Wesmæl (*Chrysis*) 457  
*auriventris* Mercet (*Hedychridium*)\* 188  
*aurofacies* (Trautmann) (*Chrysis*)\* 387  
*aurolimbata* Mocsáry (*Chrysis*)\* 387  
*aurolimbata* Móczár (*Chrysis*) 413  
*auromaculata* Mocsáry (*Chrysis*) 396  
*auromarginata* (Mocsáry) (*Trichrysis*) 573  
*auronitens* (Mocsáry) (*Chrysis*)\* 387  
*auropicta* (Mocsáry) (*Chrysura*)\* 486  
*auropasina* Mocsáry (*Chrysis*) 417  
*auropunctata* Mocsáry (*Chrysis*)\* 387  
*aurora* Christ (*Chrysis*) 477  
*aurora* (Smith) (*Cleptidea*)\* 68  
*aurora* Trautmann (*Hedychridium*)\* 188  
*aurea* Semenov (*Chrysis*) 392  
*aurotecta* Abeille (*Chrysis*)\* 387  
*aurovirens* (Mocsáry) (*Stilbichrysis*)\* 564  
*aurula* Bohart (*Chrysis*)\* 387  
*aurulenta* Mocsáry (*Chrysis*) 387  
*ausae* Bohart (*Chrysis*)\* 387  
*austeramediatata* Linsenmaier (*Chrysis*) 394  
*austeritata* (Linsenmaier) (*Caenochrysis*)\* 301  
*australasiae* (Gribodo) (*Praestochrysis*)\* 531  
*australiacus* (Mocsáry) (*Primeuchroeus*) 541  
*australis* Bohart (*Chrysis*)\* 387  
*australis* Kimsey (*Loboscelidia*)\* 146  
*australis* Linsenmaier (*Holopyga*)\* 229  
*austrica* (Fabricius) (*Chrysura*)\* 486  
*autocrata* Nurse (*Chrysis*)\* 388  
*auxifera* Buysson (*Chrysis*) 460  
*azrael* Semenov (*Hedychrum*)\* 211  
*azrouensis* Linsenmaier (*Chrysis*) 407  
*azteca* (Mocsáry) (*Caenochrysis*)\* 301  
*aztecum* Mocsáry (*Hedychrum*)\* 211  
*azurea* Krombein (*Robweria*)\* 136  
*azurellum* Bohart (*Hedychridium*) 187  
*azurescens* Ducke (*Amisega*)\* 92  
*babai* (Tsuneki) (*Pseudomalus*)\* 266  
*baccha* (Balthasar) (*Chrysura*) 489  
*bactriana* (Semenov) (*Chrysura*)\* 486  
*bactrianus* (Semenov) (*Omalus*) 249  
*baeckmanni* Semenov (*Holopyga*)\* 229  
*Baeosega* Krombein\* 78, 80, 99  
*baeri* Buysson (*Chrysis*) 447  
*baeri* (Radoszkowski) (*Chrysura*) 488  
*bahadur* Nurse (*Chrysis*)\* 388  
*bajaensis* Kimsey (*Parnopes*)\* 584  
*bakeri* Fouts (*Loboscelidia*)\* 146  
*bakeri* (Mocsáry) (*Holophris*) 224  
*bakeri* (Mocsáry) (*Trichrysis*) 572  
*balboana* Kimsey (*Cleptidea*)\* 69  
*balcanica* (Trautmann) (*Chrysis*) 475  
*balearia* Linsenmaier (*Chrysis*)\* 388  
*baliana* Mocsáry (*Chrysis*)\* 388  
*balucha* Nurse (*Chrysis*)\* 384  
*barbara* (Lucas) (*Chrysura*)\* 486  
*barbata* (Buysson) (*Chrysura*) 486  
*barbatica* Bohart (*Chrysura*)\* 486  
*barbatula* Edney (*Chrysis*) 437  
*barbatula* (Linsenmaier) (*Chrysura*)\* 486  
*barrei* Radoszkowski (*Chrysis*) 479  
*barri* Bohart (*Chrysis*)\* 388  
*barticensis* (Bischoff) (*Caenochrysis*) 304  
*basalis* Dahlbom (*Chrysis*)\* 388  
*basilacuna* Sugihara (*Chrysis*)\* 388  
*basilana* Semenov (*Chrysis*)\* 388  
*batiyemensis* Linsenmaier (*Chrysis*)\* 388  
*bavaricum* Trautmann (*Hedychridium*) 188  
*bayadera* Buysson (*Chrysis*)\* 388  
*bayoni* (Mantero) (*Omalus*) 247  
*beaumonti* Balthasar (*Holopyga*)\* 229  
*beckeri* (Tournier) (*Brugmoia*) 295  
*beckmanniana* Semenov (*Chrysis*)\* 388  
*beershebenense* Linsenmaier (*Hedychrum*)\* 211  
*begam* Mocsáry (*Chrysis*)\* 388  
*belizensis* Kimsey (*Amisega*)\* 92  
*bella* Cresson (*Chrysis*) 443  
*bella* Krombein (*Microsega*)\* 125  
*bella* Krombein (*Saltasega*)\* 137  
*bellipes* Mocsáry (*Hedychridium*) 194  
*bellula* (Guérin) (*Chrysidea*)\* 313  
*bengalensis* (Mocsáry) (*Praestochrysis*) 533  
*benghasiensis* Linsenmaier (*Chrysis*)\* 389  
*benguella* Mocsáry (*Chrysis*) 404  
*benjamini* Semenov (*Chrysis*) 415  
*bennetti* Kimsey (*Amisega*)\* 92  
*benoitii* Zimmermann (*Hedychridium*)\* 188  
*bequaerti* Bohart (*Chrysis*)\* 389  
*bequaerti* Bohart (*Praestochrysis*)\* 531  
*berberiacum* Linsenmaier (*Hedychridium*) 190  
*berberiana* Linsenmaier (*Chrysis*) 437  
*berezovskii* (Semenov) (*Omalus*)\* 247  
*bergi* Semenov (*Chrysis*)\* 389  
*bergi* Semenov (*Hedychridium*)\* 188  
*bergi* (Semenov) (*Pseudomalus*)\* 266  
*bergiellus* (Semenov) (*Pseudomalus*)\* 266  
*berlandi* Linsenmaier (*Chrysis*)\* 389  
*bernardi* (Buysson) (*Chrysis*)\* 389  
*beryllina* Gmelin (*Chrysis*)\* 389



- betsilea* Buysson (*Chrysis*) 455  
*bhavanae* Bingham (*Chrysis*)\* 389  
*bboutanensis* (Buysson) (*Chrysis*)\* 389  
*biacinctus* (Buysson) (*Omalus*)\* 247  
*bianchii* Semenov (*Chrysis*)\* 389  
*biangulatus* (Mocsáry) (*Primeuchroeus*) 541  
*bicallosa* (Buysson) (*Chrysidea*)\* 313  
*bicarinata* (Linsenmaier) (*Spinolia*) 551  
*bicarinata* (Tsuneki) (*Trichrysis*) 574  
*bicincta* (Bischoff) (*Chrysis*) 441  
*bicolor* (Dahlbom) (*Chrysura*) 495  
*bicolor* Kimsey (*Amisega*)\* 92  
*bicolor* Kimsey (*Hedychridium*)\* 188  
*bicolor* Lepeletier (*Chrysis*)\* 389  
*bidens* (Förster) (*Elampus*)\* 167  
*bidens* Edney (*Allocoelia*)\* 275  
*bidens* Kimsey (*Hedychridium*)\* 189  
*bidens* Mocsáry (*Chrysis*) 390  
*bidentata* Linnaeus (*Chrysis*)\* 389  
*bidentata* (Villers) (*Trichrysis*) 571  
*bidentatus* (Eversmann) (*Omalus*) 246  
*bidentulata* (Mocsáry) (*Chrysidea*)\* 313  
*bidentulus* (Lepeletier) (*Omalus*) 245  
*bifasciata* Hoffmann (*Chrysis*) 422  
*bifigurata* Linsenmaier (*Holopyga*)\* 229  
*bifossata* (Linsenmaier) (*Exochrysis*)\* 502  
*bifrons* Abeille (*Holopyga*)\* 229  
*bigeloviae* (Cockerell) (*Argochrysis*) 292  
*bibamata* Spinola (*Chrysis*)\* 390  
*bilobata* Balthasar (*Chrysis*) 429  
*bilobatum* Bohart (*Hedychridium*)\* 189  
*bilobipleurialis* Linsenmaier (*Chrysis*) 383  
*bimaculatus* (Kieffer) (*Myrmecomimesis*)\* 127  
*binghami* (Mocsáry) (*Praestochrysis*) 534  
*binodata* (Edney) (*Brugmoia*)\* 295  
*binominata* Mocsáry (*Chrysis*) 409  
*bipartita* Smith (*Chrysis*)\* 390  
*bipartitus* (Tournier) (*Elampus*)\* 167  
*biquetrum* Kimsey (*Hedychridium*)\* 189  
*bircikeensis* Linsenmaier (*Chrysis*)\* 390  
*birmanica* Mocsáry (*Chrysis*) 420  
*biroi* (Mocsáry) (*Haba*)\* 177  
*biroi* (Mocsáry) (*Primeuchroeus*)\* 540  
*bischoffi* Kimsey (*Elampus*)\* 167  
*bischoffi*-Linsenmaier (*Chrysis*) 421  
*biselevata* Bischoff (*Stilbichrysis*)\* 564  
*bisexcisa* Mocsáry (*Chrysis*)\* 390  
*biskrae* Bohart (*Chrysis*)\* 390  
*biskrana* Linsenmaier (*Holopyga*)\* 229  
*biskrense* Buysson (*Hedychrum*) 219  
*bispilota* Guérin (*Chrysis*) 414  
*bispinosa* (Mocsáry) (*Spintharina*)\* 556  
*bispinosus* (Riek) (*Myrmecomimesis*)\* 127  
*bistridentata* Block (*Chrysis*) 475  
*bisulcata* (Ducke) (*Ipsiura*)\* 508  
*bitumida* Bohart (*Ceratochrysis*)\* 308  
*blaisdelli* Bridwell (*Cleptes*)\* 59  
*blanchardi* Lucas (*Chrysis*)\* 390  
*blancoburgensis* (Schmiedeknecht) (*Chrysura*) 495  
*blanda* Mocsáry (*Chrysis*) 397  
*blandula* Mocsáry (*Chrysis*)\* 390  
*blandus* (Förster) (*Omalus*) 245  
*bleusei* Buysson (*Chrysis*)\* 211  
*bleusei* Buysson (*Hedychrum*)\* 390  
*bleuthgeni* (Linsenmaier) (*Spintharina*)\* 556  
*bogdanovii* Radoszkowski (*Holopyga*)\* 229  
*bogdanovi* (Radoszkowski) (*Pseudomalus*)\* 266  
*bogojavlenskii* (Semenov) (*Pseudomalus*)\* 267  
*bogotaensis* (Bischoff) (*Chrysis*) 455  
*boharti* French (*Hedychrum*)\* 211  
*boharti* Horning (*Chrysura*)\* 486  
*bohmanni* (Dahlbom) (*Trichrysis*)\* 571  
*bohemicum* Spacek (*Hedychridium*) 203  
*bolivari* Mercet (*Chrysis*) 416  
*boliviana* Bohart (*Ipsiura*)\* 508  
*boliviana* (Mocsáry) (*Caenochrysis*) 303  
*bombycida* (Mocsáry) (*Praestochrysis*)\* 531  
*bonariensis* (Brethes) (*Caenochrysis*) 300  
*borneanus* (Cameron) (*Holophris*)\* 224  
*borneense* Linsenmaier (*Stilbum*) 568  
*borodini* (Semenov) (*Pseudomalus*)\* 267  
*borregoensis* Telford (*Parnopes*)\* 584  
*bosci* (Buysson) (*Caenochrysis*)\* 301  
*boutheryi* Brèthes (*Chrysis*) 451  
*boutheryi* Brèthes (*Holopyga*)\* 229  
*boutheryi* Brèthes (*Parnopes*) 585  
*bouvieri* (Buysson) (*Pseudospinolia*)\* 547  
*bouyssonii* Buysson (*Hedychrum*)\* 211  
*bovei* Buysson (*Chrysis*)\* 390  
*brachyceras* (Bischoff) (*Chrysis*)\* 390  
*brachypyga* Ducke (*Chrysis*)\* 391  
*bradleyi* Bohart (*Ceratochrysis*)\* 308  
*braini* (Brauns) (*Chrysis*)\* 391  
*branicki* Radoszkowski (*Chrysis*)\* 391  
*brasiliانا* (Guérin) (*Caenochrysis*)\* 301  
*brasilianum* Dahlbom (*Hedychrum*)\* 211  
*brasiliensis* Brullé (*Chrysis*)\* 391  
*brasiliensis* Kimsey (*Adelphæ*)\* 85  
*braueri* Bischoff (*Holopyga*)\* 230  
*braunsiana* Mocsáry (*Chrysis*)\* 391  
*braunsiana* (Trautmann) (*Chrysura*) 493  
*braunsianum* Mocsáry (*Hedychrum*)\* 211  
*braunsii* (Mocsáry) (*Chrysidea*) 314  
*braunsii* (Mocsáry) (*Hedychridium*)\* 189  
*brethesi* (Bischoff) (*Pleurochrysis*) 525  
*Brethesia* Linsenmaier 523  
*Brethesiella* Linsenmaier 523  
*breviceps* (Semenov) (*Hedychridium*)\* 189  
*breviceps* Mocsáry (*Chrysis*)\* 391  
*brevicollis* Mocsáry (*Hedychrum*)\* 211  
*brevicollis* Linsenmaier (*Chrysis*) 391  
*brevicollis* Mocsáry (*Chrysis*) 380  
*brevicens* Tournier (*Chrysis*) 384  
*brevidentata* Schenck (*Chrysis*) 420  
*brevifrons* Linsenmaier (*Hedychridium*)\* 189  
*brevigena* Mocsáry (*Chrysis*) 393  
*brevimarginata* Linsenmaier (*Chrysis*) 457  
*brevinotum* Edney (*Hedychrum*)\* 211  
*breviradialis* Linsenmaier (*Chrysis*)\* 391  
*brevisi* Edney (*Hedychrum*)\* 212  
*brevispina* (Ducke) (*Ipsiura*)\* 508

- brevitarsis* Thomson (*Chrysis*)\* 391  
*brooksi* Bohart (*Chrysidea*)\* 313  
*brooksi* Kimsey (*Chrysis*)\* 391  
*brothersi* Bohart (*Chrysis*)\* 391  
*bruchi* (Brèthes) (*Pleurochrysis*)\* 525  
*Brugmoia* Radoszkowski\* 292  
*brullei* (Abeille) (*Caenochrysis*) 301  
*brunnea* Fouts (*Loboscelidia*)\* 146  
*bubba* Kimsey (*Neochrysis*)\* 514  
*bucculenta* (Mocsáry) (*Chrysidea*)\* 314  
*bucculenta* Mocsáry (*Chrysis*) 433  
*buda* Bohart (*Chrysis*)\* 392  
*buddhae* Mocsáry (*Chrysis*)\* 392  
*buddhae* Semenov (*Chrysis*) 392  
*buechmeri* Semenov (*Chrysis*)\* 392  
*bulawayoense* Edney (*Hedychridium*)\* 189  
*bulgariensis* (Linsenmaier) (*Pseudomalus*) 269  
*Bupon* Kimsey\* 81, 101  
*burgenlandia* Linsenmaier (*Chrysis*) 449  
*burmeisteri* Mocsáry (*Chrysis*) 451  
*burorum* Mocsáry (*Chrysis*)\* 392  
*butleri* Bohart and Campos (*Omalus*)\* 247  
*buxtoni* Morice (*Chrysis*)\* 392  
*buyssoni* Abeille (*Hedychridium*)\* 189  
*buyssoni* (Ducke) (*Cleptidea*)\* 69  
*buyssoni* Linsenmaier (*Hedychrum*) 217  
*buyssoni* Mercet (*Holopyga*) 231  
*buyssoni* (Mocsáry) (*Trichrysis*)\* 571  
*buyssoni* Semenov (*Cleptes*) 63  
*Buyssonina* Mocsáry 181  
*bytinskii* (Linsenmaier) (*Brugmoia*) 295  
*bytinskii* Linsenmaier (*Chrysis*)\* 392  
*bytinskii* Linsenmaier (*Hedychridium*)\* 189  
*bytinskii* Linsenmaier (*Hedychrum*) 216  
  
*Caenochrysis* Kimsey and Bohart\* 285, 297  
*caeruleiventris* Abeille (*Chrysis*)\* 392  
*caeruleus* (Fabricius) (*Chrysura*) 487  
*caeruleum* (Norton) (*Hedychridium*)\* 189  
*caeruleus* Dahlbom (*Elampus*)\* 167  
*caesar* Christ (*Chrysura*)\* 487  
*caffer* (Edney) (*Holophris*) 224  
  
*caffra* Mocsáry (*Chrysis*)\* 392  
*caireanum* Linsenmaier (*Hedychridium*)\* 189  
*calandra* Semenov (*Chrysis*) 464  
*caledonicus* (Mocsáry) (*Primeuchroeus*)\* 541  
*calens* (Fabricius) (*Stilbum*) 567  
*calida* Linsenmaier (*Holopyga*) 229  
*californica* Griboda (*Chrysis*) 460  
*californicus* Huber and Pengelly (*Elampus*) 169  
*calimorpha* Mocsáry (*Chrysis*) 453  
*callaina* Gribodo (*Chrysis*) 383  
*callista* Buysson (*Chrysis*)\* 392  
*callizona* Mocsáry (*Chrysis*) 387  
*callosa* Mocsáry (*Chrysis*) 415  
*callosella* Bohart (*Chrysis*)\* 392  
*callosum* Radoszkowski (*Hedychridium*) 196  
*calosoma* Mocsáry (*Chrysis*) 411  
*calpensis* Buysson (*Chrysis*)\* 392  
*calvata* Kimsey (*Adelphæ*)\* 85  
*calypso* Semenov and Nikol'skaya (*Chrysis*)\* 393  
*cameroni* (Buysson) (*Neochrysis*)\* 514  
*campanai* Buysson (*Chrysis*)\* 393  
*canadensis* Buysson (*Chrysis*) 443  
*canadensis* Kimsey (*Cleptes*)\* 59  
*canaliculata* (Brullé) (*Chrysis*)\* 393  
*canaria* Linsenmaier (*Chrysis*)\* 393  
*canarianum* Linsenmaier (*Hedychridium*) 190  
*canariense* Linsenmaier (*Hedychridium*) 190  
*canariense* Mercet (*Hedychridium*)\* 190  
*candens* (Dahlbom) (*Brugmoia*) 297  
*candens* (Germar) (*Chrysura*)\* 487  
*candida* (Edney) (*Hedychridium*) 192  
*capana* Bohart (*Chrysis*)\* 393  
*capensis* Edney (*Holopyga*)\* 230  
*capensis* Krombein (*Afrosega*)\* 88  
*capensis* Krombein (*Reidia*)\* 134  
*capensis* Mocsáry (*Chrysis*)\* 393  
*capensis* Mocsáry (*Hedychridium*)\* 190  
*capensis* (Smith) (*Allocoelia*)\* 275  
*capicola* Bohart (*Chrysis*)\* 393  
*capitalis* Dahlbom (*Chrysis*)\* 393  
*capito* Semenov (*Chrysis*)\* 394  
*caputaureum* Trautmann (*Hedychridium*) 203  
*carbunculus* (Geoffroy) (*Hedychrum*) 217  
  
*cardaleae* Bohart (*Primeuchroeus*)\* 541  
*cardiofera* (Linsenmaier) (*Ipsiura*)\* 509  
*carina* (Brullé) (*Neochrysis*)\* 515  
*carinaeventris* Mocsáry (*Chrysis*) 383  
*carinata* (Bischoff) (*Chrysis*) 446  
*carinata* (Block) (*Parnopes*) 453  
*carinata* (Say) *Caenochrysis* 305  
*carinata* Dahlbom (*Chrysis*) 393  
*carinata* Fouts (*Loboscelidia*) 147  
*carinata* Guérin (*Chrysis*) 415  
*carinulata* Mocsáry (*Chrysis*)\* 394  
*carinulata* (Spinola) (*Exallopyga*) 174  
*carinulatum* (Schenck) (*Hedychridium*) 187  
*carmelitanum* Mercet (*Hedychridium*)\* 190  
*carnea* (Fabricius) (*Parnopes*) 586  
*carnifex* Mocsáry (*Chrysis*)\* 394  
*caroli* Buysson (*Chrysis*)\* 394  
*carpenteri* Evans (*Procleptes*)\* 15  
*carrilloi* (Bohart and Brumley) (*Pseudolopyga*)\* 262  
*caspicum* Buysson (*Stilbum*) 567  
*caspicum* (Mocsáry) (*Hedychridium*)\* 190  
*caspicum* Mocsáry (*Parnopes*) 586  
*caspensis* Linsenmaier (*Chrysis*)\* 394  
*cassandra* Semenov (*Chrysis*)\* 394  
*cassiope* Mocsáry (*Chrysis*)\* 394  
*castanea* Krombein (*Loboscelidia*)\* 146  
*castigata* Linsenmaier (*Chrysis*) 410  
*castillana* Buysson (*Chrysis*)\* 394  
*castiliana* Linsenmaier (*Chrysis*) 458  
*catagrapha* Buysson (*Chrysis*)\* 394  
*catamarcae* Bohart (*Ipsiura*)\* 509  
*catarinensis* (Linsenmaier) (*Neochrysis*)\* 515  
*caucasiaca* Linsenmaier (*Chrysis*) 459  
*caucasica* Mocsáry 1912b (*Chrysis*) 382  
*caucasica* Mocsáry 1889 *Chrysis* 422  
*caucasica* Mocsáry (*Holopyga*) 229  
*caucasica* Radoszkowski (*Chrysis*) 475  
*causasicola* Semenov (*Chrysis*) 382  
*causasicum* Mocsáry (*Hedychrum*) 221  
*causasicus* Semenov (*Cleptes*)\* 59  
*causasiensis* Linsenmaier (*Chrysis*) 382

- caucasicum* Trautmann  
(*Hedychridium*) 204
- caudata* Abeille (*Holopyga*)\* 230
- caudatus* (Abeille) (*Philoctetes*)\* 254
- caudex* Linsenmaier (*Chrysis*)\* 394
- cavaleriei* (Buysson) (*Chrysis*)\* 394
- cavernalis* Móczár (*Cleptes*)\* 59
- cavicantha* Bohart (*Ceratochrysis*)\*  
285, 308
- cavifrons* (Brullé) (*Pleurochrysis*)\* 525
- cechimiae* (Semenov) (*Elampus*)\* 167
- ceciliae* Buysson (*Chrysis*)\* 395
- cedarsensis* Linsenmaier (*Chrysis*)\*  
395
- celeno* Shuckard (*Chrysis*) 420
- cembricola* Krombein (*Chrysis*)\* 395
- centralasiaticum* Trautmann  
(*Hedychridium*)\* 190
- centrale* Bohart (*Hedychridium*)\* 190
- centralis* (Mocsáry) (*Caenochrysis*)\*  
301
- centralis* Semenov (*Chrysis*) 428
- centropunctata* Linsenmaier (*Chrysis*)  
436
- Cephalochrysis* Semenov 315
- Cephaloparnops* Bischoff\* 576
- cephalotes* Semenov (*Chrysis*)\* 395
- cerastes* Abeille (*Chrysis*)\* 395
- Ceratochrysis* Cooper\* 306
- cerberus* (Trautmann) (*Pseudomalus*)  
266
- ceres* Edney (*Chrysis*) 463
- cervix* Maa and Yoshimoto (*Loboscelidia*)\* 146
- cessata* Buysson (*Chrysis*)\* 395
- ceylonica* Mocsáry (*Chrysis*)\* 395
- ceylonicus* Krombein  
(*Cladobethylus*)\* 104
- chadense* Kimsey (*Hedychridium*)\*  
190
- chakouri* Buysson (*Chrysis*)\* 395
- chakouri* Buysson (*Hedychridium*)\*  
190
- chalcea* Móczár (*Chrysis*)\* 395
- chalcites* (Mocsáry) (*Spinolia*)\* 551
- chalcobrysa* Mocsáry (*Chrysis*) 461
- chalcogaster* Mocsáry (*Chrysis*)\* 395
- chalconota* (Förster) (*Holopyga*) 231
- chalcophana* Mocsáry (*Chrysis*)\* 396
- chalcopyga* Mocsáry (*Chrysis*) 395
- chalybaeum* Dahlbom (*Hedychrum*)\*  
212
- Chamaeholopyga* Linsenmaier\* 228
- chamaeleon* Semenov (*Pseudospinolia*)  
548
- charigaster* Bohart (*Chrysis*) 460
- charon* Mocsáry (*Chrysis*)\* 396
- charon* Trautmann and Trautmann  
(*Parnopes*) 586
- charruana* (Brethes) (*Pleurochrysis*)\*  
525
- chavanae* Nurse (*Chrysis*)\* 396
- chevrieri* Abeille (*Chrysis*) 415
- chevrieri* Frey-Gessner (*Cleptes*) 60
- chevrieri* Mocsáry (*Chrysis*) 399
- chevrieri* (Tournier) (*Omalus*) 246
- chiapana* Kimsey (*Amisega*)\* 92
- chilena* (Mocsáry) (*Pleurochrysis*) 525
- chilensis* (Mocsáry) (*Pseudolopyga*)\*  
262
- chilensis* Spinola (*Chrysis*) 415
- chilicola* (Mocsáry) (*Pleurochrysis*)\*  
525
- chinensis* Mocsáry (*Chrysis*)\* 396
- chiriquensis* (Bischoff) (*Chrysis*) 451
- chlorata* Mocsáry (*Chrysis*) 391
- chloris* Mocsáry (*Chrysis*) 436
- chlorisana* Buysson (*Chrysis*) 465
- chlorobrysa* Mocsáry (*Chrysis*)\* 396
- chloroidea* (Dahlbom) (*Holopyga*) 231
- chlorophana* Mocsáry (*Chrysis*) 432
- chlorophyllum* Trautmann  
(*Hedychridium*)\* 190
- chloroprasis* (Buysson) (*Chrysura*)\*  
487
- chloropyga* (Bischoff) (*Chrysis*) 416
- chloropygum* Buysson  
(*Hedychridium*)\* 190
- chlorosoma* Dahlbom (*Chrysis*)\* 396
- chlorosomus* Lucas (*Omalus*)\* 247
- chlorospila* Klug (*Chrysis*)\* 396
- chobauti* (Buysson) (*Holophris*)\* 224
- chobauti* (Buysson) (*Pseudospinolia*)\*  
547
- cholodkovskii* Semenov (*Hedychrum*)\*  
212
- chosenensis* Tsuneki (*Chrysis*)\* 396
- Chrysaspis* Saussure 315
- Chrysellampus* Semenov 251
- Chrysidea* Bischoff\* 284, 310
- chrysidiformis* (Magretti) (*Brugmoia*)\* 295
- Chrysidium* Brauns 316
- chrycina* Saussure (*Chrysis*) 386
- chrysis* (Fabricius) (*Cleptes*) 60
- Chrysis* Linnaeus\* 284, 285, 315
- chrysocandens* (Linsenmaier)  
(*Chrysura*) 497
- chrysocephalum* Buysson (*Stilbum*)\*  
567
- chrysochlora* Mocsáry (*Chrysis*)\* 396
- chrysochlorum* (Mocsáry)  
(*Hedychridium*)\* 190
- Chrysocleptes* Móczár 54
- chrysodorsa* Linsenmaier (*Chrysis*)  
407
- chrysosfacialis* (Linsenmaier)  
(*Caenochrysis*) 304
- chrysogenalis* (Linsenmaier)  
(*Chrysura*)\* 487
- Chrysogona* Förster 315
- chrysonota* (Dahlbom) (*Spintharosoma*)\* 561
- chrysonota* (Förster) (*Holopyga*)\* 230
- chrysonotus* Dahlbom (*Elampus*)\* 167
- chrysophora* Semenov (*Chrysis*)\* 397
- chrysoprasina* Förster (*Chrysis*)\* 397
- chrysoprasina* Hellen (*Chrysis*) 417
- chrysoprasinus* Smith (*Parnopes*)\* 585
- chrysorrhousa* Gmelin (*Chrysis*)\* 397
- chrysoscutella* Linsenmaier (*Chrysis*)\*  
397
- chrysostigma* Mocsáry (*Chrysis*) 455
- chrysosviolacea* Linsenmaier (*Chrysis*)\*  
397
- Chrysura* Dahlbom\* 283, 285, 480
- Chrysurrissa* Bohart\* 285, 494
- chrysusum* Linsenmaier  
(*Hedychridium*) 200
- chyzeri* Mocsáry (*Cleptes*) 60
- cicatrix* (Abeille) (*Philoctetes*)\* 254
- ciliatum* Semenov (*Hedychridium*)\*  
191
- ciliciensis* (Mocsáry) (*Chrysura*)\* 487
- cincta* Brullé (*Chrysis*)\* 397
- cinctum* Buysson (*Hedychridium*) 187
- cingulata* Förster (*Chrysis*) 424
- cingulata* Semenov (*Holopyga*)\* 230
- cingulicornis* Förster (*Chrysis*)\* 397
- circassica* Mocsáry (*Chrysis*)\* 397
- circe* Mocsáry (*Chrysis*)\* 398
- cirtana* (Lucas) (*Chrysura*)\* 487
- cirtanum* Gribodo (*Hedychrum*)\* 212
- ciscirtana* (Linsenmaier) (*Chrysura*)\*  
487
- Cladiola* Semenov 181
- Cladobethylus* Kieffer\* 82, 102
- clara* Cresson (*Chrysis*)\* 398
- clarinicolis* Linsenmaier (*Chrysis*)  
437
- clarissima* (Bischoff) (*Chrysis*)\* 398
- clariventris* Tsuneki (*Chrysis*) 396



- clarum* (Semenov) (*Hedychridium*)\* 191  
*Cleptes* Latreille\* 53  
*Cleptidea* Mocsáry\* 53, 65  
*clivosa* Linsenmaier (*Chrysis*)\* 398  
*clor* Semenov (*Chrysis*)\* 398  
*clorbo* (Mocsáry) (*Praestochrysis*)\* 531  
*clypeata* (Balthasar) (*Chrysis*) 381  
*clypeata* Mocsáry (*Chrysis*) 432  
*clythia* (Balthasar) (*Chrysura*) 493  
*coa* Invrea (*Chrysis*)\* 398  
*cobaltina* (Aaron) (*Chrysura*)\* 487  
*coccinea* Retzius (*Chrysis*) 420  
*cockerelli* Buysson (*Hedychridium*)\* 191  
*coelestina* Klug (*Chrysis*)\* 398  
*coelestinum* Spinola (*Hedychrum*)\* 212  
*coerulans* (Dahlbom) (*Brugmoia*) 297  
*coerulans* Fabricius (*Chrysis*) 443  
*coerulescens* Chevrier (*Hedychrum*)\* 212  
*coerulescens* (Lepeletier) (*Pseudomalus*) 270  
*coeruleus* (Dahlbom) (*Pseudomalus*) 270  
*coeruleus* Kieffer (*Cladobethylus*) 104  
*coeruleus* (Kieffer) (*Myrmecomimesis*) 127  
*coeruleus* (Retzius) (*Pseudomalus*) 270  
*coerulipes* (Fabricius) (*Chrysura*) 487  
*cognata* Gribodo (*Chrysis*) 425  
*cobaerea* Linsenmaier (*Chrysis*)\* 398  
*collare* Semenov (*Hedychrum*) 216  
*collaris* Fouts (*Loboscelidia*)\* 146  
*collaris* Linsenmaier (*Cleptes*)\* 59  
*collega* Bohart (*Ceratochrysis*)\* 308  
*Colocar* Krombein\* 82, 104  
*colombiana* (Linsenmaier) (*Caenochrysis*)\* 301  
*colonialis* Mocsáry (*Chrysis*) 419  
*colonialis* Mocsáry (*Hedychridium*)\* 191  
*colonica* Mocsáry (*Chrysis*) 447  
*colonicum* Mocsáry (*Hedychrum*)\* 212  
*Colopyga* Semenov 181  
*coloradica* Bohart (*Chrysis*)\* 398  
*coloratum* Edney (*Hedychridium*)\* 191  
*columbiaca* Mocsáry (*Chrysis*) 472  
*comitata* Linsenmaier (*Chrysis*)\* 398  
*commilita* (Linsenmaier) (*Caenochrysis*)\* 301  
*communi* Bohart (*Primeuchroeus*)\* 541  
*communis* Walker (*Chrysis*)\* 398  
*comosa* Haupt (*Chrysis*) 457  
*comosa* Semenov and Nikol'skaya (*Holopyga*)\* 230  
*comotii* Gribodo (*Chrysis*)\* 398  
*compacta* Cresson (*Holopyga*) 236  
*compacticeps* (Linsenmaier) (*Caenochrysis*)\* 301  
*comparata* Lepeletier (*Chrysis*)\* 399  
*compensata* (Linsenmaier) (*Caenochrysis*)\* 301  
*complementa* (Linsenmaier) (*Caenochrysis*)\* 302  
*comptum* Edney (*Hedychrum*)\* 212  
*comta* Förster (*Chrysis*)\* 399  
*concava* Bohart (*Ceratochrysis*)\* 308  
*concinna* (Gribodo) (*Praestochrysis*) 533  
*concinna* Mocsáry (*Chrysis*) 439  
*concinnum* (Mocsáry) (*Hedychrum*)\* 212  
*concinnus* Viereck (*Parnopes*)\* 585  
*concolor* Linsenmaier (*Stilbum*) 568  
*concolor* Mocsáry 1893 (*Chrysis*)\* 399  
*concolor* Mocsáry 1912b (*Chrysis*) 413  
*concolor* (Trautmann and Trautmann) (*Chrysura*) 490  
*confalonieri* Invrea (*Chrysis*) 382  
*confinis* Mocsáry (*Chrysis*)\* 399  
*confluens* (Dahlbom) (*Chrysis*) 407  
*confluens* Mocsáry (*Chrysis*) 473  
*confusa* (Ducke) (*Neochrysis*)\* 515  
*confusa* Kimsey (*Adelphes*)\* 85  
*confusum* Buysson (*Hedychrum*)\* 212  
*confusus* (Kimsey) (*Holophris*)\* 224  
*congoense* Kimsey (*Hedychridium*)\* 191  
*congoensis* (Buysson) (*Omalus*)\* 247  
*congolensis* (Mocsáry) (*Trichrysis*) 573  
*conica* Brullé (*Chrysis*)\* 399  
*conifer* (Semenov) (*Philoctetes*)\* 254  
*coniuncta* Linsenmaier (*Chrysis*)\* 399  
*connexus* (Viereck) (*Elampus*) 172  
*Conochrysis* Haupt 480  
*conradti* (Bischoff) (*Pseudomalus*)\* 267  
*consanguinea* Mocsáry (*Chrysis*)\* 399  
*consectata* Linsenmaier (*Neochrysis*) 515  
*conserta* Buysson (*Chrysis*) 443  
*consimilis* Buysson (*Cleptes*)\* 59  
*consimilis* Cresson (*Chrysis*) 423  
*consobrina* Mocsáry (*Chrysis*) 464  
*consobrinum* Mocsáry (*Hedychrum*)\* 212  
*consors* Mocsáry (*Chrysis*) 464  
*constrictus* (Förster) (*Elampus*) 170  
*continentalis* Linsenmaier (*Chrysis*) 387  
*continuum* (Aaron) (*Holopyga*) 232  
*convexifrons* (Mocsáry) (*Trichrysis*) 572  
*cooperi* Bohart (*Ipsiura*)\* 509  
*cooperi* Krombein (*Amisega*)\* 92  
*coreana* (Uchida) (*Trichrysis*)\* 571  
*corensis* (Uchida) (*Pseudomalus*) 268  
*corfoiana* Linsenmaier (*Chrysis*) 395  
*coriacea* Buysson (*Chrysis*)\* 399  
*coriaceum* (Dahlbom) (*Hedychridium*)\* 191  
*coriaceus* (Dahlbom) (*Holophris*)\* 224  
*corniger* (Zimmermann) (*Spintharina*)\* 556  
*Cornuchrysis* Balthasar 316  
*cornutum* Bohart (*Hedychridium*)\* 191  
*coronata* Spinola (*Chrysis*) 477  
*coruscans* (Aaron) (*Pseudomalus*) 268  
*corsica* Buysson (*Chrysis*)\* 400  
*cortii* Linsenmaier (*Chrysis*)\* 400  
*corusca* Valkeila (*Chrysis*)\* 400  
*coruscans* (Norton) (*Pseudomalus*)\* 267  
*coruscum* Bohart (*Hedychridium*)\* 191  
*costae* Mocsáry (*Chrysis*)\* 400  
*costaricana* Mocsáry (*Chrysis*) 391  
*cotesi* Buysson (*Chrysis*) 447  
*coutierei* (Buysson) (*Praestochrysis*)\* 531  
*covillei* Bohart (*Ipsiura*)\* 509  
*crassepuncta* Semenov (*Holopyga*)\* 230  
*crassiceps* Tsuneki (*Cleptes*)\* 60  
*crassiceps* (Tsuneki) (*Primeuchroeus*)\* 541  
*crassimargo* Spinola (*Chrysis*) 408  
*crassinotum* Edney (*Hedychrum*)\* 213  
*crassipes* Bischoff (*Hedychrum*)\* 213  
*crassiscuta* (Mocsáry) (*Praestochrysis*)\* 531  
*crassum* Bohart (*Hedychridium*)\* 191  
*crassus* (Edney) (*Elampus*)\* 167  
*cratomorpha* Linsenmaier (*Chrysis*) 416  
*crebrum* Kimsey (*Hedychridium*)\* 192



- crenula* Bohart (*Chrysis*)\* 400  
*crenulata* Mocsáry (*Chrysis*) 441  
*crescentis* Horning (*Chrysura*)\* 487  
*Cresmophaga* Riek 125  
*cressoni* (Aaron) (*Philoctetes*) 258  
*cressoni* (Norton) (*Holopyga*) 233  
*creteense* Linsenmaier (*Hedychridium*) 196  
*creteensis* Linsenmaier (*Chrysis*) 416  
*cretica* (Mocsáry) (*Chrysura*) 494  
*cribrata* Gerstaecker (*Chrysis*) 382  
*cribrata* (Klug) (*Holopyga*)\* 230  
*cribratum* Mocsáry (*Hedychrum*)\* 213  
*cribricollis* Semenov (*Hedychrum*)\* 213  
*crista* Bohart (*Chrysis*)\* 400  
*cristata* (Mocsáry) (*Ipsisura*) 509  
*crisovallensis* Montrousier (*Chrysis*)\* 400  
*croesus* Mocsáry (*Chrysis*)\* 400  
*croci* (Buysson) (*Chrysis*)\* 400  
*crossata* Bohart (*Ceratochrysis*)\* 309  
*crotema* Bohart (*Chrysis*)\* 400  
*crotonis* (Ducke) (*Caenochrysis*)\* 302  
*cruciger* Kieffer (*Cladobethylus*)\* 104  
*cruenta* Mocsáry (*Chrysis*) 413  
*csikiana* Mocsáry (*Chrysis*) 412  
*cubana* Kimsey (*Adelphe*)\* 85  
*cubanus* Huber (*Elampus*)\* 167  
*cubensis* Mocsáry (*Chrysis*) 424  
*cuneifacialis* Kimsey (*Magdalius*)\* 121  
*cuprata* Dahlbom (*Chrysis*)\* 401  
*cuprata* Mocsáry (*Chrysis*) 420  
*cupratoides* Bohart (*Chrysis*)\* 401  
*cupratum* (Dahlbom) (*Hedychridium*)\* 192  
*cupratus* (Bischoff) (*Primeuchroeus*) 541  
*cupratus* (Mocsáry) (*Elampus*)\* 167  
*cupratus* (Mocsáry) (*Pseudomalus*) 266  
*cuprea* Brullé (*Chrysis*) 441  
*cuprea* (Geoffroy) (*Trichrysis*) 571  
*cuprea* (Rossi) (*Chrysura*)\* 487  
*cupreata* Nurse (*Holopyga*)\* 230  
*cupreidorsum* Kimsey (*Hedychridium*)\* 192  
*cupreidorsus* (Tsuneki) (*Praestochrysis*) 533  
*cupreiventris* Bingham (*Chrysis*)\* 401  
*cupreiventris* (Cameron) (*Parnopes*) 587  
*cupreum* Buysson (*Stilbum*) 567  
*cupreum* (Dahlbom) (*Hedychridium*)\* 192  
*cupricolle* Cresson (*Hedychrum*)\* 213  
*cupricolor* Linsenmaier (*Chrysis*) 436  
*cuprifrons* Cameron (*Amisega*)\* 92  
*cupritibialis* Linsenmaier (*Hedychridium*)\* 192  
*cuproprasina* Mocsáry (*Chrysis*)\* 401  
*curta* Buysson (*Chrysis*)\* 401  
*curtisensis* (Linsenmaier) (*Chrysis*)\* 401  
*curtiiventris* (Tournier) (*Pseudomalus*) 265  
*curvata* (Förster) (*Holopyga*) 231  
*curvidens* Dahlbom (*Chrysis*) 420  
*curvilineata* Edney (*Chrysis*)\* 401  
*cyanea* Buysson (*Chrysis*) 443  
*cyanea* Costa Lima (*Duckeia*)\* 108  
*cyanea* (Linnaeus) (*Trichrysis*)\* 571  
*cyanea* Trautmann (*Chrysis*) 416  
*cyanea* Uchida (*Chrysis*) 426  
*cyanea* Villers (*Chrysis*) 453  
*cyaneata* Mocsáry (*Chrysis*)\* 401  
*cyaneiventris* (Mocsáry) (*Chrysura*) 497  
*cyarella* Mocsáry (*Chrysis*) 456  
*cyanellum* (Semenov and Nikol'skaya) (*Hedychridium*) 189  
*cyanescens* (Mocsáry) (*Pentachrysis*) 521  
*cyanescens* (Mocsáry) (*Trichrysis*) 574  
*cyanescens* (Provancher) (*Omalus*) 246  
*cyaneum* Brullé (*Hedychrum*)\* 213  
*cyaneum* Radoszkowski (*Hedychrum*) 220  
*cyaniceps* Ducke (*Amisega*) 93  
*cyanicolor* Mader (*Chrysis*) 416  
*cyaniposticus* (Linsenmaier) (*Primeuchroeus*) 543  
*cyaniventris* Cresson (*Hedychrum*) 221  
*cyaniventris* (Cresson) (*Holopyga*)\* 231  
*cyanochlora* Mocsáry (*Chrysis*)\* 401  
*cyanochroa* Förster (*Chrysis*) 454  
*cyanochrysis* Förster (*Chrysis*) 420  
*cyanocoelia* (Mocsáry) (*Chrysura*) 488  
*cyanomaculatum* Trautmann (*Hedychridium*) 194  
*cyanophris* (Mocsáry) (*Spintharina*)\* 556  
*cyanops* Mocsáry (*Chrysis*) 444  
*cyanopyga* Dahlbom (*Chrysis*) 465  
*cyanosoma* (Mocsáry) (*Ceratochrysis*)\* 309  
*cyanura* (Dahlbom) (*Pseudospinolia*) 547  
*cyanurum* (Förster) (*Stilbum*)\* 567  
*cylindracea* Mocsáry (*Chrysis*) 403  
*cylindrica* Eversmann (*Chrysis*)\* 401  
*cylindrica* Kimsey (*Adelphe*)\* 85  
*cylindrosoma* Buysson (*Chrysis*)\* 402  
*Cymatochrysis* Haupt 316  
*Cymura* Dahlbom 207  
*cypernensis* Linsenmaier (*Chrysis*) 422  
*cyprina* Enslin (*Chrysis*) 420  
*cyprina* (Mocsáry) (*Trichrysis*) 572  
*cyprina* (Trautmann) (*Chrysis*) 420  
*cyprina* Buysson (*Chrysis*) 454  
*cyprina* Trautmann (*Holopyga*) 231  
*cyprica* Enslin (*Chrysis*) 420  
*cypricacum* Balthasar (*Hedychridium*) 203  
*cypriana* Enslin (*Chrysis*) 454  
*cypriana* Linsenmaier (*Chrysis*) 468  
*cypriona* (Enslin) (*Chrysura*) 492  
*cypruscula* Linsenmaier (*Chrysis*) 468  
*cypruscula* Linsenmaier (*Holopyga*)\* 231  
*cyrenaica* (Invrea and Gribodo) (*Chrysura*)\* 488  
*cyrenaicaensis* Linsenmaier (*Chrysis*) 403  
*Cyrteuchridium* Semenov 181  
*Cyrteuchrum* Semenov 181  
*daedala* Bohart (*Chrysis*)\* 402  
*daghestanica* Mocsáry (*Chrysis*) 423  
*dahlbomi* Chevrier (*Chrysis*) 382  
*dahlbomi* Semenov (*Cleptes*) 64  
*dahlbomiana* Linsenmaier (*Chrysis*)\* 402  
*dalila* Balthasar (*Chrysis*) 459  
*dallatoreana* (Mocsáry) (*Spinolia*) 551  
*dalmanni* Dahlbom (*Chrysis*)\* 402  
*dalmatina* Linsenmaier (*Chrysis*) 397  
*dalyana* (Cameron) (*Chrysis*)\* 402  
*danae* (Bingham) (*Trichrysis*) 573  
*daphne* Smith (*Chrysis*) 410  
*daphnis* Mocsáry (*Chrysis*) 401  
*darii* Mocsáry (*Chrysis*)\* 402  
*dauriana* Linsenmaier (*Chrysis*) 394  
*daurica* Mocsáry (*Chrysis*) 426  
*davidi* (Buysson) (*Chrysura*) 490  
*davidi* Buysson (*Hedychrum*)\* 213  
*davydovi* (Semenov) (*Hedychridium*) 191

- deaurata* (Mocsáry) (*Spintharosoma*) 561  
*deauratus* (Mocsáry) (*Pseudomalus*)\* 267  
*debeaumonti* Linsenmaier (*Chrysis*)\* 402  
*decemdentata* Linsenmaier (*Chrysis*)\* 402  
*decepta* Rohwer (*Chrysis*) 403  
*decipiens* Mocsáry (*Chrysis*)\* 402  
*declarata* Linsenmaier (*Chrysis*) 423  
*declinialis* (Linsenmaier) (*Chrysura*)\* 488  
*declinis* Bohart (*Ceratochrysis*)\* 309  
*decolora* Linsenmaier (*Chrysis*)\* 402  
*decora* Mocsáry (*Chrysis*)\* 402  
*decorata* Hoffmann (*Chrysis*) 468  
*decorata* Mocsáry (*Chrysis*)\* 403  
*decoris* Kimsey (*Argochrysis*)\* 291  
*decorsei* (Buysson) (*Elampus*)\* 167  
*defecta* Kieffer (*Loboscelidia*)\* 146  
*deflexa* Abeille (*Holopyga*)\* 231  
*deflexus* Abeille (*Philoctetes*)\* 254  
*defoveolata* Balthasar (*Chrysis*) 435  
*dehyalinata* (Linsenmaier) (*Ipsiura*) 510  
*deleta* Linsenmaier (*Chrysis*) 437  
*deletitaris* (Linsenmaier) (*Primeuchroeus*) 543  
*delicula* Dahlbom (*Chrysis*)\* 403  
*demaendae* Radoszkowski (*Chrysis*)\* 403  
*demelti* (Linsenmaier) (*Chrysura*) 488  
*demissa* Linsenmaier (*Chrysis*) 389  
*democratica* Cameron (*Chrysis*) 400  
*densa* (Cresson) (*Chrysurissa*)\* 500  
*densasculpturata* (Linsenmaier) (*Caenochrysis*)\* 302  
*densepunctata* Edney (*Holopyga*) 232  
*densum* Linsenmaier (*Hedychridium*) 190  
*dentaincisa* Linsenmaier (*Chrysis*)\* 403  
*dentica* Bohart (*Praestochrysis*)\* 532  
*denticlypeata* (Linsenmaier) (*Caenochrysis*)\* 302  
*denticulatus* (Spinola) (*Cephaloparnops*)\* 578  
*dentifrontis* Linsenmaier (*Chrysis*)\* 403  
*dentipes* Radoszkowski (*Chrysis*)\* 403  
*dentipleuralis* (Brauns) (*Chrysis*)\* 403  
*deposita* Nurse (*Chrysis*)\* 403  
*deraniyagalai* Krombein (*Serendibula*)\* 139  
*derivata* Buysson (*Chrysis*)\* 403  
*deserticola* Buysson (*Holopyga*)\* 229  
*deserticola* Kimsey (*Minymischa*)\* 240  
*desertorum* (Buysson) (*Chrysura*)\* 488  
*desertorum* Kimsey (*Hedychridium*)\* 192  
*desertorum* Kimsey (*Parnopes*)\* 585  
*desidiosa* (Buysson) (*Chrysura*)\* 488  
*destefanii* Mocsáry (*Chrysis*) 449  
*destituta* (Dahlbom) (*Spintharosoma*)\* 561  
*detrita* Linsenmaier (*Holopyga*) 231  
*deuteroleuca* (Mocsáry) (*Neochrysis*)\* 515  
*deversor* (Bohart) (*Caenochrysis*)\* 302  
*devia* (Linsenmaier) (*Trichrysis*) 572  
*dewitzi* Mocsáry (*Chrysis*) 438  
*diabolica* Buysson (*Chrysis*)\* 404  
*diacantha* Mocsáry (*Chrysis*)\* 404  
*diadema* Viereck (*Parnopes*) 585  
*diademata* Mocsáry (*Chrysis*)\* 404  
*diakonovi* (Semenov) (*Philoctetes*)\* 255  
*diana* Mocsáry (*Chrysis*) 409  
*diana* Mocsáry (*Cleptes*) 62  
*dichroa* (Dahlbom) (*Chrysura*)\* 488  
*dichropsis* (Buysson) (*Chrysura*)\* 488  
*Dichrysis* Lichtenstein 315  
*Dictenulus* Semenov 251  
*dido* Zimmermann (*Chrysidea*)\* 314  
*diebli* Linsenmaier (*Chrysis*)\* 404  
*difficilis* (Spinola) (*Exallopyga*)\* 174  
*difficilis* (Tournier) (*Philoctetes*) 254  
*digueti* Buysson (*Parnopes*) 585  
*dilutus* (Linsenmaier) (*Primeuchroeus*) 543  
*dimidiata* Fabricius (*Chrysis*) 477  
*dimidiatum* (Say) (*Hedychridium*)\* 192  
*Diplorrbos* Aaron 251  
*dira* Mocsáry (*Chrysis*)\* 404  
*dirce* Mocsáry (*Chrysis*) 380  
*discedens* (Zimmermann) (*Elampus*)\* 167  
*disclusa* (Linsenmaier) (*Chrysidea*) 314  
*discoidalis* (Buysson) (*Exallopyga*) 175  
*discolor* Linsenmaier (*Holopyga*) 230  
*discordum* Linsenmaier (*Hedychridium*)\* 192  
*discrepans* (Edney) (*Hedychridium*)\* 192  
*discreta* (Aaron) (*Caenochrysis*) 302  
*disiunctum* Linsenmaier (*Hedychridium*)\* 192  
*dismorphum* Linsenmaier (*Hedychridium*)\* 192  
*disparilis* Cameron (*Chrysis*)\* 404  
*dispersipunctata* Edney (*Holopyga*) 232  
*dissendata* (Linsenmaier) (*Ipsiura*) 510  
*dissimilanda* Buysson (*Chrysis*)\* 404  
*dissimilis* Dahlbom (*Chrysis*)\* 404  
*distincta* (Linsenmaier) (*Pleurochrysis*)\* 526  
*distincta* Mocsáry (*Chrysis*)\* 404  
*distinctissima* Dahlbom (*Chrysis*)\* 405  
*distinctum* Edney (*Hedychrum*)\* 213  
*distinguenda* Spinola (*Chrysis*)\* 405  
*distorta* Krombein (*Saltaesga*)\* 138  
*districta* Buysson (*Chrysis*)\* 405  
*disturbans* Edney (*Hedychrum*) 215  
*ditricbi* (Bischoff) (*Chrysis*) 438  
*divergens* (Cresson) (*Caenochrysis*)\* 302  
*diversa* Dahlbom (*Chrysis*) 446  
*diversum* Edney (*Hedychridium*) 197  
*diversum* Krombein (*Palaeochrum*)\* 15  
*diversus* Aaron (*Omalus*) 247  
*dives* Lucas (*Chrysis*)\* 405  
*djelma* (Buysson) (*Chrysura*)\* 488  
*djozanus* (Tsuneki) (*Pseudomalus*)\* 267  
*dobrni* (Dahlbom) (*Holopyga*) 236  
*doi* Tsuneki (*Cleptes*)\* 60  
*dolens* Semenov and Nikol'skaya (*Chrysis*)\* 405  
*dolichoceras* (Bischoff) (*Praestochrysis*) 533  
*dolichostoma* (Buysson) (*Pentachrysis*)\* 522  
*dolosa* (Buysson) (*Pleurochrysis*)\* 526  
*dominula* Abeille (*Chrysis*) 465  
*doriae* (Gribodo) (*Caenochrysis*)\* 302  
*dorsalis* Aaron (*Chrysis*)\* 405  
*dorsata* Brullé (*Chrysis*) 407  
*dorsata* Buysson (*Chrysis*) 383  
*dournovi* (Radoszkowski) (*Spinolia*)\*

- 551  
*doursi* (Gribodo) (*Brugmoia*) 296  
*doursi* (Siebel) (*Parnopes*) 586  
*downeyi* (Bohart and Campos) (*Philoctetes*)\* 255  
*draco* Semenov (*Chrysis*)\* 405  
*drewseni* Dahlbom (*Chrysis*)\* 405  
*drewseni* Gribodo (*Chrysis*) 410  
*dromeda* Buysson (*Chrysis*) 410  
*dubai* Bohart (*Spintharina*)\* 557  
*dubia* Cresson (*Chrysis*) 423  
*dubia* Radoszkowski (*Chrysis*) 379  
*dubitata* Mocsáry (*Chrysis*)\* 406  
*dubium* Mercet (*Hedychridium*)\* 192  
*dubuyssoni* (Ducke) (*Cleptidea*)\* 69  
*ducke* (Mocsáry) (*Neochrysis*) 514  
*Duckeia* Costa Lima 80, 106  
*dufourii* Abeille (*Chrysis*) 423  
*dugesii* Buysson (*Chrysis*)\* 406  
*dunbrodiense* Edney (*Hedychrum*)\* 213  
*duplex* (Bischoff) (*Primeuchroeus*) 543  
*duplicata* Mocsáry (*Chrysis*) 383  
*duplupunctatus* (Tsuneki) (*Philoctetes*)\* 255  
*duplogermari* Linsenmaier (*Chrysis*)\* 406  
*duplomaculata* Linsenmaier (*Chrysis*) 446  
*duplopilosa* Linsenmaier (*Chrysis*)\* 406  
*durbar* Mocsáry (*Chrysis*)\* 406  
*durga* Bingham (*Chrysis*)\* 406  
*dusmeti* Mercet (*Chrysis*)\* 406  
*dusmeti* (Trautmann) (*Brugmoia*) 295  
*dusmeti* (Trautmann) 1926a:9 (*Chrysis*) 458  
*dusmeti* (Trautmann) 1926a:11 (*Chrysis*) 406  
*dusmeti* (Trautmann) (*Chrysura*) 490  
*dusmeti* Trautmann (*Philoctetes*)\* 255  
*dusmeti* (Trautmann) (*Spinolia*) 552  
*dusmetina* Bohart (*Chrysis*)\* 406  
*dybowskyi* Buysson (*Hedychridium*)\* 193  
*dzhanelidzei* Semenov (*Hedychridium*)\* 193  
*dzhigit* (Semenov and Nikol'skaya) (*Omalus*)\* 247  
*ear* Semenov (*Allochrysis*)\* 288  
*eardleyi* Bohart (*Trichrysis*)\* 571  
*eardleyi* Kimsey (*Hedychridium*)\* 193  
*eatoni* Buysson (*Chrysis*)\* 406  
*eborata* Semenov (*Chrysis*)\* 406  
*echidna* Semenov (*Chrysis*)\* 406  
*ecuadorica* Mocsáry (*Chrysis*) 456  
*ecuadoricum* Mocsáry (*Hedychrum*)\* 213  
*edentula* Rossi (*Chrysis*) 477  
*edentula* (Schrank) (*Holopyga*) 228  
*edneyi* Bohart (*Chrysis*)\* 406  
*edneyi* Bohart (*Spintharina*)\* 557  
*edneyi* Kimsey (*Allocoelia*)\* 275  
*edwardsii* Buysson (*Chrysis*)\* 407  
*edwardsii* (Cresson) (*Parnopes*)\* 585  
*effenata* Linsenmaier (*Holopyga*) 229  
*egregia* (Buysson) (*Brugmoia*) 296  
*ehrenbergi* (Dahlbom) (*Chrysis*)\* 407  
*Elampus* Spinola 161, 163  
*eldari* (Radoszkowski) (*Chrysura*)\* 489  
*electa* Walker (*Chrysis*)\* 407  
*electra* Shuckard (*Chrysis*) 420  
*elegans* (Klug) (*Cephaloparnops*) 578  
*elegans* Lepeletier (*Chrysis*)\* 407  
*elegans* Mocsáry (*Cleptes*)\* 60  
*elegans* (Mocsáry) (*Hedychridium*) 193  
*elegantula* Spinola (*Chrysis*)\* 407  
*elegantulum* Buysson (*Hedychridium*)\* 193  
*elevata* (Mocsáry) (*Praestochrysis*)\* 532  
*elevodentata* Linsenmaier (*Chrysis*) 424  
*elizabethae* Bingham (*Chrysis*)\* 407  
*elisabethae* Semenov (*Pseudospinolia*) 547  
*ellampia* Bohart (*Chrysis*)\* 407  
*ellampiformis* (Mocsáry) (*Caenochrysis*) 302  
*ellampoides* (Ducke) (*Ipsiura*)\* 509  
*ellampoides* Semenov (*Chrysis*) 407  
*Ellampus* Agassiz 163  
*ellipticus* (Linsenmaier) (*Primeuchroeus*)\* 541  
*elongata* (Brèthes) (*Caenochrysis*) 301  
*elongata* (Mocsáry) (*Chrysura*) 497  
*elongatum* Linsenmaier (*Hedychridium*)\* 193  
*elongatus* (Schenck) (*Elampus*) 170  
*elongatus* (Semenov and Nikol'skaya) (*Philoctetes*)\* 255  
*elvira* Balthasar (*Chrysis*)\* 408  
*elzearii* (Buysson) (*Chrysura*)\* 489  
*emarginatula* Spinola (*Chrysis*)\* 408  
*emarginata* Edney (*Allocoelia*) 276  
*emarginatus* (Edney) (*Philoctetes*) 254  
*emendatum* Edney (*Hedychrum*) 215  
*enbucycki* (Cooper) (*Ceratochrysis*)\* 309  
*enslini* Linsenmaier (*Holopyga*)\* 231  
*enslini* Linsenmaier (*Stilbum*) 567  
*eo* (Semenov) (*Brugmoia*)\* 295  
*eos* (Semenov) (*Chrysura*)\* 489  
*eos* (Trautmann) (*Pseudospinolia*) 457  
*ephippium* Curtis (*Chrysis*)\* 408  
*episcopal* (Block) (*Parnopes*) 586  
*episcopalis* Guérin (*Chrysis*) 467  
*episcopalis* Spinola (*Chrysis*) 469  
*equestris* Dahlbom (*Chrysis*)\* 408  
*equidens* Viereck (*Chrysis*)\* 408  
*erato* Radoszkowski (*Chrysis*) 441  
*erdosi* Móczár (*Cleptes*) 62  
*eremophila* Mocsáry (*Chrysis*)\* 408  
*erigone* (Mocsáry) (*Chrysura*)\* 489  
*erivanensis* Radoszkowski (*Chrysis*)\* 408  
*ermak* Semenov (*Hedychrum*) 219  
*errans* (Buysson) (*Chrysura*)\* 489  
*erratica* Buysson (*Chrysis*) 383  
*erschovi* (Radoszkowski) (*Hedychridium*) 203  
*erythema* Kimsey (*Hedychridium*)\* 193  
*erythraeana* Mocsáry (*Chrysis*)\* 408  
*erythrocer* Mocsáry (*Chrysis*)\* 408  
*erythromelas* Dahlbom (*Chrysis*) 424  
*escaleraei* Mercet (*Chrysis*)\* 408  
*escaleraei* (Buysson) (*Chrysis*) 408  
*escomeli* Buysson (*Chrysis*) 456  
*espagnola* Linsenmaier (*Chrysis*)\* 408  
*etnaense* Linsenmaier (*Hedychridium*)\* 193  
*eucharis* Mocsáry (*Chrysis*) 383  
*euchlamys* Mocsáry (*Chrysis*) 454  
*Euchridium* Semenov 181  
*Euchrooides* Nurse 549  
*Euchroeus* Latreille 315  
*euchroma* (Mocsáry) (*Praestochrysis*) 533  
*Euchrum* Semenov 181  
*eumesadonta* Semenov and Nikol'skaya (*Chrysis*)\* 409  
*eupraxiae* Semenov (*Hedychridium*)\* 193  
*euridice* Balthasar (*Chrysis*) 477  
*euroa* Linsenmaier (*Chrysis*) 465  
*europaea* Linsenmaier (*Chrysis*) 453



- europaeum* Linsenmaier (*Hedychrum*) 216  
*Eurychrysis* Bischoff 315  
*eusoma* Mocsáry (*Chrysis*) 439  
*euterpe* Balthasar (*Chrysis*)\* 409  
*eva* Balthasar (*Chrysis*) 474  
*evansi* (Krombein) (*Amisega*)\* 92  
*eversmanni* Mocsáry (*Chrysis*) 403  
*eversmanni* Mocsáry (*Elampus*)\* 168  
*evexa* Bohart (*Chrysis*)\* 409  
*exadversa* Linsenmaier (*Chrysis*) 458  
*Exallopaga* French\* 159, 173  
*excavata* Brullé (*Chrysis*)\* 409  
*excavata* Haupt (*Chrysis*) 421  
*excelsior* Bohart (*Argochrysis*)\* 291  
*excisa* Radoszkowski (*Chrysis*)\* 409  
*excisifrons* (Mocsáry) (*Trichrysis*)\* 572  
*excursa* Linsenmaier (*Chrysis*)\* 409  
*excurvatus* Viereck (*Parnopes*) 485  
*exigua* Mocsáry (*Chrysis*) 405  
*eximia* Mocsáry (*Chrysis*)\* 409  
*Exochrysis* Bohart\* 284, 500  
*Exopapua* Krombein\* 79, 108  
*exornata* Mocsáry (*Chrysis*)\* 409  
*Exova* Riek\* 79, 110  
*explicatum* Edney (*Hedychrum*)\* 213  
*executa* Mocsáry (*Chrysis*)\* 409  
*Exseochrysis* Linsenmaier 523  
*expectatum* Edney (*Hedychrum*) 215  
*exulans* Dahlbom (*Chrysis*)\* 409  
*extensa* Edney (*Chrysis*)\* 410  
*extera* (Linsenmaier) (*Caenochrysis*)\* 302  
*extensa* Buysson (*Chrysis*)\* 410  
*extranea* Linsenmaier (*Chrysis*) 458  
*extraniens* (Rohwer) (*Praestochrysis*) 533  
*extrema* (Semenov and Nikol'skaya) (*Spintharina*) 558  
  
*fabricii* Mocsáry (*Chrysis*)\* 410  
*fabulosa* Semenov (*Chrysis*)\* 410  
*faceta* (Aaron) (*Ceratochrysis*)\* 309  
*faceta* Mocsáry (*Chrysis*) 412  
*facetana* Linsenmaier (*Chrysis*) 412  
*facialis* Buysson (*Chrysis*)\* 410  
*facialis* (Mocsáry) (*Hedychridium*)\* 193  
*fabringeri* (Trautmann) (*Pseudospinolia*) 547  
*fairmairei* Mocsáry (*Chrysis*) 420  
*fallax* Mocsáry (*Cleptes*) 62  
  
*fallax* Mocsáry (*Chrysis*) 467  
*falsifica* Buysson (*Chrysis*) 432  
*familiaris* Mocsáry (*Chrysis*) 380  
*fascialis* Linsenmaier (*Holopyga*)\* 231  
*fasciata* (Dalman) (*Cleptidea*)\* 69  
*fasciata* Donovan (*Chrysis*) 421  
*fasciata* (Fabricius) (*Neochrysis*) 515  
*fasciata* Olivier (*Chrysis*)\* 410  
*fasciata* Spinola (*Chrysis*) 424  
*fasciata* (Spinola) (*Pseudospinolia*) 548  
*fasciatus* Mocsáry (*Parnopes*) 586  
*fasciifera* (Bischoff) (*Pleurochrysis*)\* 526  
*fasciolata* Klug (*Chrysis*) 477  
*fastuosa* (Lucas) (*Holopyga*) 228  
*faustus* (Smith) (*Primeuchroes*)\* 541  
*fax* Semenov (*Chrysis*)\* 410  
*feana* Mocsáry (*Chrysis*) 447  
*fedtschenkoi* (Radoszkowski) (*Pseudospinolia*) 547  
*fedtschenkoi* (Semenov) (*Philoctetes*)\* 255  
*feensis* (Linsenmaier) (*Pleurochrysis*)\* 526  
*fellmanni* (Lucas) (*Holopyga*) 231  
*femoralis* Eversmann (*Elampus*) 167  
*femoralis* Mocsáry (*Cleptes*) 62  
*femorata* Mocsáry (*Chrysis*) 445  
*femoratum* (Dahlbom) (*Hedychridium*)\* 193  
*fenestrata* Abeille (*Chrysis*) 453  
*fenestrata* Marquet (*Chrysis*) 477  
*fenniensis* Linsenmaier (*Chrysis*) 437  
*feritatum* Linsenmaier (*Hedychridium*) 186  
*feroculum* Linsenmaier (*Hedychridium*) 207  
*fertoni* Buysson (*Chrysis*) 390  
*fervens* Mocsáry (*Chrysis*)\* 410  
*fervida* (Fabricius) (*Holopyga*)\* 231  
*festina* Smith (*Chrysis*)\* 410  
*festivus* Cockerell (*Parnopes*) 585  
*festivus* (Fabricius) (*Parnopes*)\* 585  
*filiafacialis* Linsenmaier (*Chrysis*)\* 411  
*filiformis* (Mocsáry) (*Chrysura*)\* 489  
*finitima* (Linsenmaier) (*Caenochrysis*)\* 302  
*fisheri* Spinola (*Parnopes*)\* 585  
*flagrans* Balthasar (*Chrysis*) 390  
*flagrans* Semenov (*Chrysis*)\* 411  
  
*flamaryi* Buysson (*Chrysis*)\* 411  
*flamma* Semenov (*Chrysis*)\* 411  
*flammea* (Lepeletier) (*Chrysura*) 495  
*flammiceps* Mocsáry (*Stilbum*) 567  
*flammifer* Semenov (*Cleptes*)\* 60  
*flammulatum* Smith (*Hedychrum*)\* 213  
*flavicollis* (Kieffer) (*Myrmecomimesis*)\* 127  
*flavicrus* Kimsey (*Amisega*)\* 92  
*flavipes* (Ducke) (*Adelphe*)\* 85  
*flavipes* (Eversmann) (*Hedychridium*)\* 193  
*flavipes* Kimsey (*Amisega*)\* 92  
*flavitarise* Costa (*Hedychrum*) 221  
*flavitaris* Förster (*Chrysis*) 382  
*fletcheri* Bodenstein (*Hedychridium*)\* 194  
*flexilateralis* Linsenmaier (*Chrysis*)\* 411  
*flexuosa* Mocsáry (*Chrysis*)\* 411  
*floridensis* (Krombein) (*Amisega*)\* 92  
*florisomnis* Mocsáry (*Chrysis*)\* 411  
*florissantensis* Bohart (*Chrysis*) 411  
*florissanticola* Rohwer (*Chrysis*)\* 411  
*flos* Semenov (*Hedychridium*)\* 194  
*foetiana* (Semenov) (*Chrysura*)\* 489  
*foebowia* Linsenmaier (*Chrysis*)\* 411  
*formosaiense* Linsenmaier (*Hedychrum*) 214  
*formosana* (Mocsáry) (*Trichrysis*) 573  
*formosanum* Mocsáry (*Hedychrum*)\* 213  
*formosella* Mocsáry (*Chrysis*)\* 411  
*fortiterpunctata* (Linsenmaier) (*Chrysura*) 492  
*fortuna* Semenov (*Chrysis*)\* 412  
*fossulata* Smith (*Chrysis*)\* 412  
*fouqueti* (Buysson) (*Chrysis*)\* 412  
*foveata* (Dahlbom) (*Chrysura*) 497  
*foveata* (Trautmann) (*Chrysura*) 488  
*foveatidorsa* (Linsenmaier) (*Chrysura*)\* 489  
*foveatus* (Mocsáry) (*Elampus*)\* 168  
*foveolata* De-Stephani (*Holopyga*) 231  
*fracta* (Haupt) (*Chrysura*) 486  
*fragaria* (Semenov and Nikol'skaya) (*Chrysura*)\* 489  
*franciscæ* Linsenmaier (*Chrysis*) 404  
*franciscæ* Linsenmaier (*Cleptes*) 58  
*franciscanum* Linsenmaier (*Hedychridium*)\* 194



- frankenbergeri* Balthasar (*Chrysis*)\* 412  
*fraterna* Mocsáry (*Chrysis*) 409  
*fraudulenta* Mocsáry (*Chrysis*) 430  
*fretissana* (Linsenmaier) (*Chrysura*) 495  
*freygessneri* Gribodo (*Chrysis*) 475  
*freygessneri* (Mocsáry) (*Primeuchroeus*) 542  
*freyi* (Tournier) (*Omalus*) 247  
*friedrichsi* (Schulthess) (*Chrysidea*) 313  
*friesei* Buysson (*Chrysis*)\* 412  
*friesei* (Mocsáry) (*Holophris*)\* 224  
*friesiana* (Ducke) (*Ipsiura*)\* 509  
*fritzi* Bohart (*Ipsiura*)\* 509  
*fritzi* Kimsey (*Cleptes*)\* 60  
*frivaldskyi* (Förster) (*Elampus*) 171  
*frivaldskyi* Mocsáry (*Hedychrum*)\* 214  
*frivaldskii* Mocsáry (*Chrysis*) 468  
*frontalis* Klug (*Chrysis*)\* 412  
*frontiplana* (Bischoff) (*Chrysis*) 478  
*frontis* Kimsey (*Hedychridium*)\* 194  
*frugale* Bohart (*Hedychridium*)\* 194  
*fudzi* Tsuneki (*Cleptes*)\* 60  
*fugacis* Bohart (*Chrysis*)\* 412  
*fugax* Abeille (*Chrysis*)\* 412  
*fugax* Semenov (*Chrysis*) 412  
*fukai* Rohwer (*Chrysis*) 447  
*fulgida* Linnaeus (*Chrysis*)\* 412  
*fulgidaeformis* (Bischoff) (*Chrysis*) 420  
*fulgidaria* Tsuneki (*Chrysis*)\* 413  
*fulgidum* Kimsey (*Hedychridium*)\* 194  
*fulminans* Linsenmaier (*Chrysis*) 414  
*fulminatrix* (Buysson) (*Chrysura*)\* 489  
*fulvago* (Semenov and Nikol'skaya) (*Hedychridium*)\* 194  
*fulvicornis* Cameron (*Parnopes*)\* 585  
*fulvicornis* Mocsáry (*Chrysis*)\* 413  
*fulvitarsis* Mocsáry (*Chrysis*) 463  
*fumipennis* (Smith) (*Praestochrysis*)\* 532  
*furfifera* (Bingham) (*Praestochrysis*)\* 532  
*furiosa* (Cameron) (*Chrysidea*)\* 314  
*fuscipennis* Brullé (*Chrysis*) 383  
*fuscipennis* (Dahlbom) (*Pseudomalus*) 270  
*fusilis* Bohart (*Ceratochrysis*)\* 309  
*gabonensis* Mocsáry (*Chrysis*) 393  
*galatea* Semenov (*Chrysis*)\* 413  
*galloisi* (Buysson) (*Chrysis*)\* 413  
*galloisi* Uchida (*Cleptes*)\* 60  
*gambica* Bohart (*Praestochrysis*)\* 532  
*gambiensis* Mocsáry (*Chrysis*) 459  
*garianum* Linsenmaier (*Hedychridium*)\* 194  
*gasparinni* (Mocsáry) (*Pseudomalus*) 266  
*gastrica* (Dahlbom) (*Chrysura*) 497  
*Gaullea* Buysson\* 284, 503  
*gaulliei* (Buysson) (*Praestochrysis*)\* 532  
*gayi* Spinola (*Chrysis*) 414  
*gayi* (Spinola) (*Elampus*)\* 168  
*gazaagnairei* (Buysson) (*Chrysura*)\* 489  
*gazella* Mocsáry (*Chrysis*) 433  
*geddiensis* Linsenmaier (*Chrysis*)\* 413  
*gemma* Abeille (*Chrysis*) 477  
*gemma* (Semenov) (*Hedychridium*)\* 195  
*gemmata* Smith (*Chrysis*) 460  
*gemmatum* Kimsey (*Hedychridium*)\* 195  
*genalis* (Mocsáry) (*Chrysura*)\* 490  
*genbergi* (Dahlbom) (*Ipsiura*)\* 509  
*generosa* (Förster) (*Holopyga*) 230  
*genosa* Bohart (*Chrysis*)\* 413  
*genuata* Balthasar (*Chrysis*) 462  
*georgii* Semenov (*Chrysis*)\* 413  
*georgii* Semenov (*Hedychridium*)\* 195  
*germanica* (Trautmann) (*Chrysis*) 468  
*germari* Wesmael (*Chrysis*)\* 413  
*gerstaeckeri* Chevrier (*Hedychrum*)\* 214  
*gertabi* Radoszkowski (*Chrysis*) 441  
*gessi* Kimsey (*Hedychridium*)\* 195  
*gestroi* Gribodo (*Chrysis*)\* 414  
*getula* (Buysson) (*Chrysura*)\* 490  
*gheudei* Guérin (*Chrysis*)\* 414  
*ghilianii* (Gribodo) (*Primeuchroeus*)\* 541  
*gibba* Brullé (*Chrysis*)\* 414  
*gibbosa* (Mocsáry) (*Caenochrysis*)\* 303  
*gibbula* Mocsáry (*Chrysis*)\* 414  
*gigantea* (Buysson) (*Chrysura*) 494  
*gigantea* (Trautmann) (*Chrysis*) 416  
*gilbus* Kimsey (*Cladobethylus*)\* 104  
*gilgitensis* Linsenmaier (*Chrysis*)\* 414  
*giraudi* Buysson (*Chrysis*)\* 414  
*glabra* Edney (*Allocoelia*)\* 276  
*glabriceps* (Ducke) (*Neochrysis*) 515  
*glasunowi* Semenov (*Chrysis*)\* 414  
*glasunowi* Semenov (*Parnopes*)\* 586  
*globulus* (Semenov) (*Holopyga*)\* 231  
*glomeratus* (Buysson) (*Omalus*)\* 248  
*gloriosa* Dahlbom (*Chrysis*) 416  
*gloriosa* (Fabricius) (*Pseudomalus*) 265  
*Glossochrysis* Semenov 316  
*glycera* Semenov (*Chrysis*) 392  
*gnatho* Mocsáry (*Chrysis*) 423  
*Godfrinia* Kieffer 65  
*goeldi* (Ducke) (*Ipsiura*)\* 509  
*goethiana* Semenov (*Chrysis*)\* 414  
*gogorzae* Lichtenstein (*Chrysis*)\* 415  
*gogorzae* Trautmann (*Holopyga*)\* 231  
*goliath* (Abeille) (*Pentachrysis*) 522  
*Gonochrysis* Lichtenstein 548  
*Gonodontochrysis* Semenov 316  
*gonomaculatum* Edney (*Hedychrum*) 219  
*gorislava* Semenov (*Chrysis*)\* 415  
*goyasensis* (Buysson) (*Neochrysis*)\* 515  
*gracile* Semenov (*Hedychrum*)\* 214  
*gracilentia* Mocsáry (*Chrysis*)\* 415  
*gracilentum* Mocsáry (*Hedychrum*)\* 214  
*gracilia* Linsenmaier (*Chrysis*) 464  
*gracilia* (Linsenmaier) (*Pleurochrysis*) 524  
*gracilicornis* Semenov (*Chrysis*)\* 415  
*gracilis* Bohart (*Ceratochrysis*)\* 309  
*gracilis* Kimsey (*Duckeia*)\* 108  
*gracilis* Krombein (*Leptosega*)\* 120  
*gracilis* Krombein (*Serendibula*)\* 139  
*gracilis* Schenck (*Chrysis*) 384  
*gracilis* Trautmann (*Chrysis*) 464  
*gracilis* (Trautmann) (*Chrysura*) 497  
*gracillima* Förster (*Chrysis*)\* 415  
*graeciana* Linsenmaier (*Chrysis*) 413  
*graelsii* Guérin (*Chrysis*)\* 415  
*graja* (Mocsáry) (*Chrysura*)\* 490  
*granadana* Linsenmaier (*Holopyga*)\* 232  
*grande* Tournier (*Hedychrum*) 221  
*grandidieri* (Saussure) (*Chrysis*)\* 415  
*grandior* (Pallas) (*Parnopes*)\* 586

- grandis* Brullé (*Chrysis*)\* 415  
*grandis* (Tsuneki) (*Pseudomalus*)\* 415  
*granti* (Bohart and Campos) (*Philoctetes*)\* 255  
*grata* Mocsáry (*Chrysis*) 439  
*gratiosa* (Mocsáry) (*Pseudospinolia*)\* 547  
*gratiosum* Abeille (*Hedychrum*) 214  
*gratiosum* Marquet (*Hedychrum*)\* 214  
*greeni* Bingham (*Chrysis*)\* 415  
*gressitti* Bohart (*Primeuchroes*)\* 541  
*gribodoi* Abeille (*Chrysis*)\* 415  
*gribodoi* Buysson (*Holopyga*)\* 231  
*griffinii* Mantero (*Chrysis*) 396  
*grisselli* Bohart (*Ceratocrysis*)\* 309  
*grohmanni* Dahlbom (*Chrysis*)\* 416  
*grumorum* Semenov (*Chrysis*)\* 416  
*guadarrama* Linsenmaier (*Holopyga*)\* 232  
*guatemalana* Mocsáry (*Chrysis*)\* 416  
*guatemalensis* (Cameron) (*Exalopyga*)\* 174  
*guedesi* (Ducke) (*Neochrysis*) 515  
*guerini* Mocsáry (*Chrysis*) 467  
*guichardi* Linsenmaier (*Chrysis*)\* 416  
*guillarmodi* Kimsey (*Elampus*)\* 168  
*guineae* (Bischoff) (*Praestocrysis*)\* 532  
*guineensis* Mocsáry (*Chrysis*) 404  
*gujaratica* Nurse (*Chrysis*)\* 416  
*guruensis* Linsenmaier (*Cleptes*) 63  
*gusenleitneri* Linsenmaier (*Chrysis*)\* 417  
*gussakovskii* Semenov and Nikol'skaya (*Chrysis*)\* 417  
*gussakovskii* Semenov and Nikol'skaya (*Hedychridium*)\* 195  
*gussakovskii* (Semenov and Nikol'skaya) (*Pseudomalus*)\* 267  
*gyllenbali* (Dahlbom) (*Chrysura*)\* 490  
  
*Haba* Semenov\* 160, 175  
*hafisi* Semenov (*Chrysis*)\* 417  
*hageni* Viereck (*Parnopes*) 585  
*halictula* (Gribodo) (*Chrysura*) 494  
*Halopyga* Tournier 226  
*hamanni* Linsenmaier (*Chrysis*) 456  
*handlirschi* Mocsáry (*Chrysis*)\* 417  
*harmandi* (Buysson) (*Philoctetes*)\* 255  
*harmeri* (Mocsáry) (*Brugmoia*)\* 295  
*haugbianum* Buysson (*Hedychrum*)\* 214  
*hebes* Buysson (*Chrysis*)\* 417  
*hebraeica* Linsenmaier (*Chrysis*) 449  
*hecate* Mocsáry (*Chrysis*)\* 417  
*hecuba* Mocsáry (*Chrysis*)\* 417  
*hedenborgi* (Dahlbom) (*Chrysis*) 466  
*Hedychreides* Bohart\* 159, 178  
*Hedychridium* Abeille\* 159, 180  
*hedychriformis* Mocsáry (*Chrysis*)\* 417  
*hedychroides* (Bingham) (*Spinolia*) 552  
*Hedychrum* Latreille\* 160, 207  
*helenae* Semenov and Nikol'skaya (*Chrysis*)\* 417  
*beliaca* Mocsáry (*Chrysis*) 462  
*heliophila* (Mocsáry) (*Trichrysis*)\* 572  
*heliophilum* Abeille (*Hedychridium*)\* 195  
*helleni* Linsenmaier (*Chrysis*)\* 417  
*hellenica* (Mocsáry) (*Brugmoia*)\* 295  
*helleniensis* (Linsenmaier) (*Chrysura*) 494  
*helvetica* Mocsáry (*Chrysis*) 390  
*helvetica* (Trautmann) (*Spintharina*) 558  
*helveticus* (Linsenmaier) (*Pseudomalus*)\* 267  
*bemera* Semenov and Nikol'skaya (*Chrysis*)\* 418  
*bemichlora* Linsenmaier (*Chrysis*) 424  
*hemipyrrha* Mocsáry (*Chrysis*)\* 418  
*hemisimpla* Linsenmaier (*Holopyga*) 234  
*henrici* Buysson (*Chrysis*) 425  
*henshawi* Viereck (*Parnopes*) 585  
*hephaestites* Harris (*Chrysis*)\* 418  
*Heptachrysis* Mocsáry 315  
*heptapotomicus* (Semenov) (*Pseudomalus*)\* 267  
*heraklionica* Linsenmaier (*Chrysis*)\* 418  
*herbstii* (Mocsáry) (*Holophris*)\* 225  
*herculeana* (Semenov) (*Brugmoia*)\* 295  
*herodiana* Morice (*Spinolia*) 552  
*heros* Buysson (*Chrysis*) 429  
*heros* (Semenov) (*Philoctetes*)\* 255  
*heroum* Mocsáry (*Chrysis*) 455  
*herzensteini* Semenov (*Chrysis*)\* 418  
*Heterocrysis* Brauns 316  
*Heterocoelia* Mocsáry 56  
*hewittii* Cameron (*Chrysis*)\* 418  
*Hexachridium* Bischoff 181  
*Hexachrysis* Lichtenstein 315  
*hexapholis* Bohart (*Trichrysis*)\* 572  
*hexodontophora* (Bischoff) (*Chrysis*) 425  
*heymonsi* (Bischoff) (*Chrysis*)\* 418  
*heymonsi* (Bischoff) (*Hedychridium*)\* 195  
*hians* Bohart (*Argochrysis*)\* 291  
*hibera* (Linsenmaier) (*Spinolia*)\* 551  
*hiendlmayeri* (Mocsáry) (*Chrysura*) 497  
*hilaris* Morice (*Hedychridium*)\* 195  
*bilaris* (Dahlbom) (*Chrysura*) 494  
*himalayensis* (Radoszkowski) (*Praestocrysis*) 534  
*hirsuta* Aaron (*Chrysis*) 440  
*hirsuta* (Trautmann) (*Chrysis*) 468  
*hirsuta* (Gerstaecker) (*Chrysura*)\* 490  
*hirsutus* (Semenov) (*Philoctetes*)\* 255  
*hirta* Semenov and Nikol'skaya (*Holopyga*) 230  
*hirtipes* Buysson (*Chrysis*)\* 418  
*hirtipes* (Mocsáry) (*Prochridium*)\* 260  
*hirtum* (Semenov) (*Hedychridium*)\* 195  
*hirtus* (Semenov) (*Pseudomalus*)\* 267  
*hispanica* Tournier (*Holopyga*) 229  
*hispanica* (Trautmann) (*Chrysis*) 475  
*hispanicum* Buysson (*Hedychridium*) 202  
*hoberlandti* Balthasar (*Chrysis*)\* 418  
*hoberlandti* Balthasar (*Hedychrum*)\* 214  
*hofferi* Balthasar (*Chrysis*) 461  
*hofferi* Balthasar (*Hedychridium*)\* 195  
*boggei* Nurse (*Chrysis*)\* 418  
*hohlbecki* (Semenov) (*Omalus*)\* 248  
*Holcocleptes* Móczár 53  
*Holochrysis* Rye 480  
*Holophris* Mocsáry\* 161, 222  
*Holopyga* Dahlbom\* 160, 226  
*Homaleuchrum* Semenov 181  
*Homalus* Saunders 243  
*homeopathicum* Abeille (*Hedychridium*) 187  
*hondonis* (Tsuneki) (*Pseudomalus*) 267

- honorata* Mocsáry (*Chrysis*)\* 418  
*boozana* Mocsáry (*Chrysis*)\* 418  
*hoplites* Mocsáry (*Chrysis*)\* 419  
*boratiana* Semenov (*Chrysis*) 432  
*horningi* Bohart (*Primeuchroeus*)\* 541  
*hortobagyensis* Móczár (*Holopyga*)\* 232  
*horus* Aaron (*Holopyga*)\* 232  
*horvathi* Mocsáry (*Chrysis*)\* 419  
*horvathi* (Mocsáry) (*Philotetes*)\* 256  
*hostilis* Mocsáry (*Chrysis*) 433  
*bouskai* Balthasar (*Hedychridium*)\* 195  
*bouskai* (Balthasar) (*Spintharina*)\* 557  
*bouskiana* Balthasar (*Chrysis*) 421  
*bova* (Saussure) (*Chrysidea*) 313  
*huberi* Kimsey (*Adelopyga*)\* 163  
*huberi* (Ducke) (*Holophris*)\* 225  
*hubrichi* Linsenmaier (*Neochrysis*)\* 515  
*humboldtii* (Dahlbom) (*Pseudospinolia*)\* 547  
*humeralis* Klug (*Chrysis*)\* 419  
*humida* Krombein (*Baeosega*)\* 100  
*humilis* Buysson (*Chrysis*) 448  
*hungaricum* Móczár (*Hedychridium*)\* 195  
*hyacinthina* Mocsáry (*Chrysis*) 441  
*hyacinthus* Semenov (*Chrysis*)\* 419  
*Hyalichroeus* Linsenmaier 559  
*hyalifoventata* (Linsenmaier) (*Caenochrysis*)\* 303  
*hyalina* (Trautmann) (*Chrysis*) 416  
*hyalinae* Kuznetsov-Ugamskii (*Cleptes*)\* 60  
*hyalinata* (Mocsáry) (*Pleurochrysis*)\* 527  
*hyalinatum* (Mocsáry) (*Hedychridium*)\* 195  
*hyalinipennis* Mocsáry (*Chrysis*)\* 419  
*hyalinomarginatus* (Bischoff) (*Holophris*)\* 225  
*hyalinus* (Aaron) (*Elampus*)\* 168  
*hybrida* (Lepelletier) (*Chrysura*)\* 490  
*hybridum* Linsenmaier (*Hedychridium*)\* 196  
*hydra* Semenov (*Chrysis*)\* 419  
*hydropica* Abeille (*Chrysis*)\* 419  
*hylae* Linsenmaier (*Chrysis*) 407  
*hypocritus* (Buysson) (*Omalus*)\* 248  
*byrcana* Semenov (*Chrysis*) 441  
*byrcanum* Semenov (*Hedychrum*)\* 214  
*byrcanus* Semenov (*Cleptes*)\* 60  
*byrcanus* (Semenov) (*Elampus*)\* 168  
*iberica* (Linsenmaier) (*Brugmoia*) 296  
*iberica* Linsenmaier (*Chrysis*) 389  
*ibericum* Linsenmaier (*Hedychridium*)\* 196  
*idolon* Semenov (*Chrysis*)\* 419  
*ignea* Linsenmaier (*Holopyga*) 234  
*igneola* Buysson (*Chrysis*) 401  
*ignescia* Linsenmaier (*Chrysis*)\* 419  
*igniceps* Mocsáry (*Chrysis*)\* 419  
*ignicolis* Dahlbom (*Holopyga*) 230  
*ignicolis* (Trautmann) (*Chrysis*)\* 419  
*ignifacialis* Linsenmaier (*Chrysis*) 468  
*ignifacies* Mercet (*Chrysis*) 468  
*ignifascia* Mocsáry (*Chrysis*)\* 420  
*ignifrons* (Brullé) (*Chrysura*)\* 490  
*ignigena* Linsenmaier (*Chrysis*)\* 420  
*ignita* (Linnaeus) (*Chrysis*)\* 420  
*ignithorax* (Balthasar) (*Pseudospinolia*) 547  
*ignitoides* Marechal (*Chrysis*) 413  
*ignitus* Chevrier (*Cleptes*) 60  
*ignitus* (Fabricius) (*Cleptes*)\* 60  
*igniventer* Guérin (*Chrysis*) 445  
*igniventris* Abeille (*Chrysis*) 395  
*igoriana* Semenov (*Chrysis*) 442  
*iheringi* Buysson (*Holopyga*)\* 232  
*iheringi* (Buysson) (*Caenochrysis*) 305  
*illecebrosa* Semenov (*Chrysis*)\* 421  
*illigeri* Wesmael (*Chrysis*) 389  
*illudens* Buysson (*Chrysis*)\* 421  
*illustris* Stocklein (*Chrysis*) 474  
*Imasega* Krombein\* 80, 111  
*imbecilla* (Mocsáry) (*Pleurochrysis*)\* 526  
*imbecillus* (Mocsáry) (*Holophris*)\* 225  
*imberbus* Buysson (*Parnopes*) 586  
*immaculata* Buysson (*Chrysis*)\* 421  
*imminente* (Linsenmaier) (*Caenochrysis*)\* 303  
*immixta* (Linsenmaier) (*Caenochrysis*)\* 303  
*impar* Dahlbom (*Chrysis*)\* 421  
*imperatrix* Buysson (*Chrysis*)\* 421  
*imperfodata* (Gribodo) (*Exochrysis*)\* 502  
*imperialis* Dahlbom (*Chrysis*) 461  
*imperialis* Grادل (*Holopyga*) 228  
*imperialis* (Shuckard) (*Pseudomalus*) 270  
*imperialis* Westwood (*Chrysis*)\* 421  
*imperiosa* (Smith) (*Praestochrysis*) 533  
*impostor* Mocsáry (*Chrysis*)\* 421  
*impressa* Schenck (*Chrysis*) 420  
*impressifrons* (Mocsáry) (*Trichrysis*)\* 572  
*impressum* Edney (*Hedychridium*) 191  
*impudens* Edney (*Chrysis*)\* 422  
*inaequalis* Dahlbom (*Chrysis*)\* 422  
*inaequalis* (Edney) (*Omalus*) 247  
*inaequidens* Dahlbom (*Chrysis*)\* 422  
*inaequipunctata* (Bischoff) (*Chrysis*)\* 422  
*inambitiosa* Linsenmaier (*Chrysis*)\* 422  
*inanis* Buysson (*Chrysis*) 449  
*inaurata* Mocsáry (*Holopyga*)\* 232  
*incarum* Mocsáry (*Chrysis*) 456  
*incarum* Mocsáry (*Hedychrum*)\* 214  
*incensa* (Mocsáry) (*Hedychridium*)\* 196  
*incerta* Dahlbom (*Chrysis*) 466  
*incerta* Radoszkowski (*Chrysis*) 404  
*incertus* (Haupt) (*Pseudomalus*)\* 267  
*incisa* Buysson (*Chrysis*) 457  
*incisicollis* (Linsenmaier) (*Primeuchroeus*)\* 542  
*incisum* Bohart (*Hedychridium*)\* 196  
*inclinata* Linsenmaier (*Chrysis*)\* 422  
*inclita* (Mocsáry) (*Pleurochrysis*) 525  
*inconspicua* (Linsenmaier) (*Caenochrysis*)\* 303  
*incrassata* (Spinola) (*Pseudospinolia*)\* 547  
*incrassatum* (Dahlbom) (*Hedychridium*)\* 196  
*incuratus* (Panfilov) (*Cephaloparnops*) 578  
*indiacus* Bohart (*Primeuchroeus*)\* 542  
*indica* Kimsey (*Loboscelidia*)\* 147  
*indica* Mocsáry (*Chrysis*) 466  
*indica* Mocsáry (*Holopyga*)\* 232  
*indica* Schrank (*Chrysis*)\* 422  
*indicus* Linsenmaier (*Parnopes*)\* 586  
*indigena* Buysson (*Chrysis*)\* 423  
*indigotea* Dufour and Perris (*Chrysis*) 422  
*indigoteus* (Buysson) (*Pseudomalus*) 266  
*indistincta* (Linsenmaier) (*Pleurochrysis*)\* 526  
*Indotbrix* Krombein\* 82, 113  
*inermis* (Brèthes) (*Pleurochrysis*) 525  
*inermis* Gmelin (*Chrysis*) 420



- inermis* Kieffer (*Loboscelidia*)\* 147  
*inevitabilis* (Buysson) (*Praestochrysis*)\* 532  
*infans* Abeille (*Hedychridium*)\* 196  
*infans* Mocsáry (*Chrysis*)\* 423  
*infantula* Semenov (*Chrysis*)\* 423  
*infernalis* Semenov (*Chrysis*) 428  
*inflammata* (Förster) (*Holopyga*) 228  
*inflammatus* (Mocsáry) (*Philoctetes*) 257  
*inflata* Aaron (*Chrysis*)\* 423  
*infusata* Brullé (*Chrysis*)\* 423  
*infusata* Mocsáry (*Chrysis*) 420  
*inimica* Mocsáry (*Chrysis*)\* 423  
*innesi* (Buysson) (*Spintharina*)\* 557  
*inops* (Gribodo) (*Praestochrysis*)\* 532  
*inornata* Bohart (*Argochrysis*)\* 291  
*inornata* Edney (*Trichrysis*) 571  
*inquisitor* Mocsáry (*Chrysis*) 425  
*insequosum* Linsenmaier (*Hedychridium*)\* 196  
*inseriata* (Mocsáry) (*Neochrysis*)\* 515  
*insidiosus* Buysson (*Cleptes*)\* 60  
*insignis* (Lucas) (*Spinolia*)\* 551  
*insignita* Mocsáry (*Chrysis*) 430  
*insolita* Krombein (*Serendibula*)\* 139  
*insolita* Mocsáry (*Chrysis*)\* 423  
*insoluta* Abeille (*Chrysis*) 454  
*insperata* Chevrier (*Chrysis*)\* 423  
*insperata* Mocsáry (*Chrysis*) 402  
*insperata* Mocsáry (*Holopyga*)\* 232  
*insperatus* Aaron (*Cleptes*) 62  
*insperatus* Mocsáry (*Holophris*)\* 225  
*insueta* (Buysson) (*Primeuchroeus*) 541  
*insula* Kimsey (*Adelphæ*)\* 86  
*insulare* Balthasar (*Hedychridium*) 204  
*insulare* Linsenmaier (*Hedychridium*) 197  
*insulare* Mocsáry (*Hedychrum*)\* 214  
*insularis* Guérin (*Chrysis*)\* 423  
*insularis* Smith (*Chrysis*) 398  
*insulicola* (Mocsáry) (*Chrysis*) 395  
*insuturalis* Linsenmaier (*Neochrysis*)\* 515  
*integellus* (Semenov) (*Omalus*) 248  
*integer* (Montrouzier) (*Primeuchroeus*) 540  
*integerrima* (Klug) (*Spintharina*)\* 557  
*integra* (Cresson) (*Chrysura*) 496  
*integra* Fabricius (*Chrysis*)\* 424  
*integrella* (Dahlbom) (*Pseudospinolia*) 548  
*integrum* (Dahlbom) (*Hedychridium*)\* 196  
*interandinus* (Benoist) (*Omalus*) 247  
*interceptor* Smith (*Chrysis*)\* 424  
*intercurra* Linsenmaier (*Chrysis*)\* 424  
*interdichroa* (Linsenmaier) (*Chrysura*)\* 491  
*interfata* (Buysson) (*Chrysura*) 491  
*intergermari* Linsenmaier (*Chrysis*) 414  
*interjecta* Buysson (*Chrysis*)\* 424  
*intermedia* Buysson (*Chrysis*) 453  
*intermedia* (Dahlbom) (*Holopyga*)\* 232  
*intermedia* Mercet (*Holopyga*) 233  
*intermedius* (Aaron) (*Philoctetes*)\* 256  
*intermedius* Müller (*Parnopes*) 586  
*interpellator* Linsenmaier (*Chrysis*)\* 424  
*interrogata* Linsenmaier (*Chrysis*) 407  
*interrogatum* Linsenmaier (*Hedychridium*)\* 196  
*interruptum* Edney (*Hedychrum*) 215  
*intersa* Linsenmaier (*Holopyga*)\* 232  
*intricans* Spinola (*Chrysis*)\* 424  
*intricata* Brullé (*Chrysis*)\* 424  
*intrudens* Smith 1874b (*Chrysis*) 412  
*intrudens* Smith 1865 (*Chrysis*)\* 425  
*inuitata* (Aaron) (*Chrysura*)\* 491  
*inuitatum* Linsenmaier (*Hedychridium*)\* 196  
*invisa* (Linsenmaier) (*Caenochrysis*) 301  
*invreai* Balthasar (*Chrysis*)\* 425  
*invreai* Zimmermann (*Spintharina*)\* 557  
*io* Semenov (*Chrysis*)\* 425  
*iocosa* Linsenmaier (*Chrysis*)\* 425  
*iocosum* Linsenmaier (*Hedychridium*)\* 196  
*ionophris* Mocsáry (*Chrysis*)\* 425  
*iphimedeia* (Trautmann) (*Chrysis*) 492  
*iphimediata* (Trautmann) (*Chrysura*)\* 467  
*Ipsiura* Linsenmaier\* 284, 506  
*iraniensis* Buysson (*Chrysis*) 403  
*irenes* Semenov and Nikol'skaya (*Chrysis*)\* 425  
*Irenula* Semenov 181  
*iridescens* (Norton) (*Omalus*)\* 248  
*iridescens* (Riek) (*Myrmecomimesis*) 127  
*iris* Christ (*Chrysis*) 453  
*iris* Müller (*Parnopes*) 586  
*irradians* (Semenov) (*Brugmoia*) 296  
*irregulare* Linsenmaier (*Hedychridium*)\* 196  
*irregulare* (Mocsáry) (*Odonotobrydium*)\* 519  
*irreperata* Linsenmaier (*Chrysis*)\* 426  
*irwini* Bohart (*Chrysis*)\* 426  
*irwini* Bohart (*Ipsiura*)\* 509  
*isabella* (Trautmann) (*Chrysura*)\* 491  
*Isadelphia* Semenov\* 576, 579  
*Isadelphus* Semenov 579  
*Ischnochrysis* Häupt 316  
*Isegama* Krombein\* 82, 115  
*isiris* Semenov (*Chrysis*) 403  
*ismaeli* (Semenov) (*Allochrysis*)\* 288  
*israelia* Linsenmaier (*Chrysis*)\* 426  
*israelica* (Linsenmaier) (*Brugmoia*) 296  
*israelicum* Linsenmaier (*Hedychridium*)\* 197  
*israelium* Linsenmaier (*Hedychrum*) 211  
*italica* Dahlbom (*Holopyga*)\* 232  
*itamii* (Tsuneki) (*Pseudomalus*)\* 267  
*ivoriana* Bohart (*Praestochrysis*)\* 532  
*iwata* Tosawa (*Chrysis*)\* 426  
*jacobsoni* Buysson (*Chrysis*) 479  
*jacobsoni* Semenov (*Hedychrum*)\* 214  
*jakolewi* Semenov (*Hedychridium*)\* 197  
*jakovlevi* Semenov (*Chrysis*)\* 426  
*jakovlevi* (Semenov) (*Elampus*)\* 168  
*jalala* Nurse (*Chrysis*)\* 426  
*jamaicensis* Kimsey (*Adelphæ*)\* 86  
*jansei* Edney (*Chrysis*)\* 426  
*janthina* Dahlbom (*Holopyga*)\* 232  
*janthina* Förster (*Chrysis*) 422  
*janthina* Smith (*Chrysis*) 383  
*janthinum* Dahlbom (*Hedychrum*)\* 214  
*janus* (Haldeman) (*Pseudomalus*)\* 267  
*janzeni* Kimsey (*Cleptidea*)\* 69  
*japonensis* Linsenmaier (*Chrysis*) 443  
*japonica* Cameron (*Chrysis*)\* 426



- japonica* Mocsáry (*Chrysis*) 443  
*japonicum* Cameron (*Hedychrum*)\* 214  
*japonicus* (Bischoff) (*Omalus*) 247  
*japonicus* Kimsey (*Cladobethylus*)\* 104  
*japonicus* Tosawa (*Cleptes*)\* 61  
*javana* Mocsáry (*Chrysis*) 479  
*jaxartis* Semenov (*Chrysis*)\* 426  
*jaxartis* (Semenov) (*Omalus*)\* 248  
*jazygicum* Móczár (*Hedychridium*)\* 197  
*jebbanum* Kimsey (*Hedychridium*)\* 197  
*jelisyni* Radoszkowski (*Chrysis*)\* 426  
*jemenensis* Linsenmaier (*Parnopes*) 586  
*jendoubense* Linsenmaier (*Hedychridium*) 191  
*jenseni* (Buysson) (*Exallopyga*)\* 175  
*jenseni* (Buysson) (*Pleurochrysis*)\* 526  
*jerichoensis* (Linsenmaier) (*Pseudospinolia*) 547  
*joannis* (Buysson) (*Pseudomalus*)\* 268  
*jone* (Mocsáry) (*Praestochrysis*) 532  
*joppensis* Buysson (*Chrysis*)\* 426  
*jordana* (Trautmann) (*Chrysis*) 435  
*jordanense* Linsenmaier (*Hedychridium*)\* 197  
*jordanica* (Linsenmaier) (*Brugmoia*)\* 295  
*jordanica* Linsenmaier (*Chrysis*) 415  
*jordanicus* Linsenmaier (*Cleptes*)\* 61  
*jousseamei* Buysson (*Chrysis*)\* 427  
*jucunda* Mocsáry (*Chrysis*)\* 427  
*jucunda* Mocsáry (*Holopyga*)\* 233  
*jucundum* Mocsáry (*Hedychridium*)\* 197  
*judaica* Buysson (*Chrysis*)\* 427  
*judith* (Balthasar) (*Chrysura*) 495  
*jugum* Dahlbom (*Chrysis*)\* 427  
*jugurthina* (Zimmermann) (*Brugmoia*) 295  
*juno* Semenov (*Chrysis*)\* 427  
*jurinei* Chevrier (*Holopyga*) 230  
*kabulica* Balthasar (*Chrysis*) 405  
*kabli* Viereck (*Chrysis*) 451  
*kablui* (Ashmead) (*Amisega*)\* 92  
*kaindeana* Kimsey (*Kryptosega*)\* 82, 119  
*kali* Mocsáry (*Chrysis*) 470  
*kalliope* (Balthasar) (*Chrysura*) 493  
*kalliopsis* (Zimmermann) (*Holopbris*)\* 225  
*kalypso* (Trautmann) (*Chrysura*) 488  
*kameruna* Bischoff (*Trichrysis*) 572  
*kamerunum* Bischoff (*Hedychrum*)\* 214  
*kansensis* (Viereck) (*Ceratochrysis*)\* 309  
*kansitakuanus* (Tsuneki) (*Primeuchroeus*)\* 542  
*kaokoana* (Edney) (*Spintharina*) 556  
*karafutonis* Tosawa (*Chrysis*)\* 427  
*karatawica* (Semenov) (*Chrysura*) 497  
*karatawicum* Semenov (*Hedychridium*)\* 197  
*karooicola* Edney (*Chrysis*)\* 427  
*karunaratnei* Krombein (*Serendibula*)\* 139  
*kashgarica* Mocsáry (*Chrysis*)\* 427  
*kashmirae* Kimsey (*Spinolia*)\* 552  
*kashmirensis* (Nurse) (*Chrysura*)\* 491  
*kashmirensis* (Nurse) (*Elampus*)\* 168  
*kasyapai* Krombein (*Serendibula*)\* 140  
*kaszabi* Móczár (*Holopyga*)\* 233  
*katangana* Mocsáry (*Chrysis*)\* 427  
*katanganum* Mocsáry (*Hedychrum*)\* 215  
*katanganus* (Linsenmaier) (*Stilbichrysis*) 564  
*katbergense* Edney (*Hedychrum*)\* 215  
*kathederi* Buysson (*Chrysis*) 442  
*katonae* Mocsáry (*Chrysis*) 430  
*kaufeli* Zimmermann (*Chrysis*) 445  
*kenyana* Bohart (*Chrysis*)\* 427  
*kerenensis* Mocsáry (*Chrysis*) 393  
*keriensis* Radoszkowski (*Chrysis*)\* 427  
*kerteszi* Mocsáry (*Chrysis*)\* 428  
*kerteszi* (Trautmann) (*Chrysis*) 397  
*kerteszi* (Trautmann) (*Pseudomalus*) 266  
*kessleri* Radoszkowski (*Chrysis*)\* 428  
*khami* Edney (*Chrysis*) 405  
*khatanga* Evans (*Protamisega*)\* 15  
*kibonotoensis* (Cameron) (*Praestochrysis*) 535  
*kilifiense* Kimsey (*Hedychridium*)\* 197  
*kimberleyana* Mocsáry (*Chrysis*)\* 428  
*kimseyae* Bohart (*Spintharina*)\* 557  
*kirbyana* Mocsáry (*Chrysis*) 397  
*kiritschenkoi* (Semenov) (*Omalus*) 249  
*kirschii* Mocsáry (*Chrysis*) 420  
*klapperichi* Balthasar (*Chrysis*) 436  
*klio* Balthasar (*Chrysis*) 474  
*kloofensis* (Cameron) (*Chrysis*) 394  
*klugi* (Dahlbom) (*Ipsiura*)\* 509  
*knowltoni* Bohart (*Chrysis*)\* 428  
*kobli* (Buysson) (*Exallopyga*) 174  
*kobli* (Mocsáry) (*Pseudospinolia*) 547  
*koblui* Mocsáry (*Chrysis*)\* 428  
*koblui* (Mocsáry) (*Elampus*) 170  
*kokandica* Radoszkowski (*Chrysis*)\* 428  
*kokuevi* Semenov (*Chrysis*)\* 428  
*kolazyi* Mocsáry (*Chrysis*)\* 428  
*koma* (Tsuneki) (*Chrysura*)\* 491  
*komachi* Tsuneki (*Chrysis*)\* 428  
*komareki* Balthasar (*Chrysis*) 468  
*komarowi* (Radoszkowski) (*Elampus*)\* 168  
*komarovi* Semenov (*Hedychrum*) 212  
*komarowi* Radoszkowski (*Chrysis*)\* 428  
*konowi* (Buysson) (*Elampus*)\* 168  
*konyaca* Linsenmaier (*Chrysis*)\* 429  
*korbiana* Mocsáry (*Chrysis*)\* 429  
*korsakovi* (Semenov and Nikol'skaya) (*Chrysura*) 488  
*korzhinskii* (Semenov) (*Elampus*) 170  
*kovacsii* Mocsáry (*Chrysis*) 393  
*kozhanzhikov* Semenov (*Hedychrum*)\* 233  
*kozhanzhikov* Semenov (*Holopyga*)\* 215  
*kozheznikov* (Semenov) (*Omalus*)\* 248  
*kozlovi* Semenov (*Chrysis*)\* 429  
*krajniki* Balthasar (*Hedychridium*)\* 197  
*krebsi* (Bischoff) (*Chrysis*)\* 429  
*kremastiana* Linsenmaier (*Chrysis*) 392  
*kriechbaumeri* (Gribodo) (*Primeuchroeus*)\* 542  
*rkiana* Linsenmaier (*Chrysis*) 416  
*krombeini* Bohart (*Chrysis*)\* 429  
*krombeini* (Bohart and Campos) (*Philoctetes*)\* 256  
*krueperi* Mocsáry (*Chrysis*)\* 429  
*krugerana* Bohart (*Chrysis*)\* 429  
*krugeri* Edney (*Chrysis*)\* 429  
*krugeri* Invrea (*Hedychrum*)\* 215  
*Kryptosega* Kimsey\* 117  
*kukunorensis* Semenov (*Chrysis*)\* 429

- kusdasicus* Móczár (*Cleptes*)\* 61  
*kutbyana* Mocsáry (*Holopyga*)\* 233  
*kuznetzovi* (Semenov) (*Philoctetes*)\* 256  
*kuznetzovi* (Semenov) (*Spintharina*) 558  
*kyrae* Krombein (*Chrysura*)\* 491  
*kythyi* (Mocsáry) (*Pseudospinolia*) 548  
  
*laborans* Costa (*Chrysis*)\* 429  
*Lacomerista* Cameron 144  
*lacerta* (Semenov) (*Trichrysis*)\* 572  
*lachesis* (Mocsáry) (*Praestochrysis*)\* 532  
*lada* (Semenov) (*Chrysura*)\* 491  
*laeta* Dahlbom (*Chrysis*)\* 430  
*laetabilis* Buysson (*Chrysis*)\* 430  
*laetiapicalis* (Linsenmaier) (*Ipsiura*)\* 509  
*laetifica* Mocsáry (*Chrysis*) 455  
*laetificum* Linsenmaier (*Hedychridium*)\* 197  
*laetula* (Semenov and Nikol'skaya) (*Allochrysis*)\* 288  
*laetum* (Semenov and Nikol'skaya) (*Hedychridium*)\* 197  
*laevichybeata* Edney (*Chrysis*)\* 430  
*laevicollis* Buysson (*Chrysis*)\* 430  
*laevifallax* Perraudin (*Chrysis*) 467  
*laevigata* (Abeille) (*Chrysura*)\* 492  
*laevigatum* Mocsáry (*Hedychrum*)\* 215  
*laevigatus* (Mocsáry) (*Omalus*)\* 248  
*laevimarginata* Linsenmaier (*Chrysis*)\* 430  
*laevis* Kimsey (*Adelphe*)\* 86  
*laeiventris* Cresson (*Omalus*) 246  
*laevivittatum* Edney (*Hedychrum*)\* 215  
*laglaizei* Buysson (*Chrysis*)\* 430  
*lagodechii* Radoszkowski (*Chrysis*) 383  
*lagopus* (Buysson) (*Pleurochrysis*)\* 526  
*lais* (Abeille) (*Chrysura*) 487  
*lama* Buysson (*Hedychrum*)\* 215  
*lama* Mocsáry (*Chrysis*)\* 431  
*lamborni* Bohart (*Praestochrysis*)\* 532  
*lamellata* Mocsáry (*Chrysis*)\* 431  
*laminata* Mocsáry (*Chrysis*)\* 431  
*laminifera* (Bischoff) (*Chrysis*)\* 431  
*lampa* (Semenov) (*Chrysura*)\* 492  
*lampadum* Linsenmaier (*Hedychridium*) 203  
*lampas* (Christ) (*Hedychridium*) 203  
*lamprosoma* (Förster) (*Spinolia*)\* 552  
*lampunense* Tsuneki (*Hedychridium*) 199  
*lanata* Mocsáry (*Chrysis*)\* 431  
*lanceolata* Linsenmaier (*Chrysis*)\* 431  
*lanka* (Bingham) (*Trichrysis*)\* 572  
*laodamia* (Buysson) (*Chrysura*)\* 492  
*laotiana* Kimsey (*Loboscelidia*)\* 147  
*lara* Mocsáry (*Chrysis*) 396  
*lassenae* Bohart (*Argochrysis*)\* 291  
*lata* Bohart (*Ipsiura*)\* 510  
*lata* Edney (*Holopyga*)\* 233  
*laterale* Edney (*Hedychridium*)\* 197  
*lateralis* (Brullé) (*Ipsiura*) 510  
*lateralis* Dahlbom (*Chrysis*)\* 431  
*lateridentata* (Aaron) (*Chrysura*) 487  
*laticeps* Krombein (*Baeosega*)\* 100  
*latichybeata* Edney (*Chrysis*)\* 431  
*latifasciata* Edney (*Chrysis*)\* 431  
*latifrons* Edney (*Hedychridium*)\* 198  
*latifrons* Edney (*Holopyga*) 232  
*latigena* Mocsáry (*Chrysis*)\* 431  
*latigena* Lin (*Loboscelidia*) 147  
*latilateralis* (Linsenmaier) (*Pleurochrysis*)\* 526  
*latinota* Edney (*Allocoelia*)\* 276  
*latipyga* Edney (*Chrysis*)\* 431  
*latitutum* Linsenmaier (*Hedychrum*)\* 215  
*lativentris* (Tournier) (*Chrysura*) 490  
*latreillei* Mocsáry (*Chrysis*)\* 432  
*lauta* Cresson (*Chrysis*)\* 432  
*lazulina* (Förster) (*Spinolia*) 552  
*leachi* Shuckard (*Chrysis*)\* 432  
*lecointai* (Ducke) (*Neochrysis*)\* 515  
*leechi* Bohart (*Praestochrysis*)\* 533  
*Leiocleptes* Móczár 53  
*leira* (Cameron) (*Praestochrysis*) 532  
*lemniscata* Kimsey (*Exochrysis*)\* 502  
*lemoulti* Buysson (*Hedychridium*)\* 198  
*lepcha* Cameron (*Chrysis*) 447  
*lepeletieri* Buysson (*Hedychrum*) 217  
*lepida* Mocsáry (*Chrysis*)\* 432  
*lepidula* Linsenmaier (*Chrysis*) 459  
*lepidum* Linsenmaier (*Hedychrum*) 219  
*leptopoecila* Semenov (*Chrysis*)\* 432  
*Leptosega* Krombein\* 78, 119  
*lermontovi* Semenov (*Chrysis*)\* 432  
*leskii* Gmelin (*Chrysis*)\* 432  
*lesnei* Buysson (*Chrysis*)\* 432  
*lethifera* Mocsáry (*Chrysis*) 430  
*leucobasis* (Mocsáry) (*Ipsiura*)\* 510  
*leucocheila* (Mocsáry) (*Ipsiura*)\* 510  
*leucocheiloides* (Ducke) (*Ipsiura*)\* 510  
*leuconoe* Semenov (*Chrysis*)\* 432  
*leucophris* (Mocsáry) (*Pleurochrysis*)\* 526  
*leucostigma* Bohart (*Hedychridium*)\* 198  
*leucostigma* (Mocsáry) (*Exochrysis*)\* 503  
*leveillei* Buysson (*Stilbum*) 567  
*levioris* Edney (*Chrysis*)\* 433  
*lewisi* (Cameron) (*Hedychrum*)\* 215  
*libanense* Linsenmaier (*Hedychridium*) 206  
*libanesa* (Linsenmaier) (*Pseudospinolia*) 547  
*libanensis* Linsenmaier (*Chrysis*) 397  
*libanoticus* Linsenmaier (*Cleptes*)\* 61  
*libita* (Buysson) (*Praestochrysis*)\* 533  
*libussa* Balthasar (*Chrysis*) 469  
*lilloi* Bohart (*Ipsiura*)\* 510  
*limaca* (Linsenmaier) (*Caenochrysis*)\* 303  
*limaca* (Linsenmaier) (*Pleurochrysis*)\* 526  
*limassolense* Linsenmaier (*Hedychridium*) 203  
*limbata* (Dahlbom) (*Brugmoia*)\* 295  
*limpidipennis* (Semenov) (*Philoctetes*)\* 256  
*lincea* Fabricius (*Chrysis*)\* 433  
*lindholmi* (Semenov) (*Hedychridium*) 194  
*lineata* (Krombein) (*Atoposega*)\* 98  
*linigera* (Linsenmaier) (*Caenochrysis*) 302  
*littoralis* Mocsáry (*Chrysis*) 403  
*litura* Bohart (*Argochrysis*)\* 291  
*lividum* Bohart (*Hedychridium*)\* 198  
*lobata* (Mocsáry) (*Ceratochrysis*) 310  
*Loboscelidia* Westwood\* 143  
*Loboscelidoidea* Rye 143  
*loenidae* (Semenov) (*Chrysura*)\* 492  
*lomboldti* Bohart (*Trichrysis*)\* 572  
*lomboldti* Kimsey (*Hedychridium*)\* 198  
*lomonosovi* (Semenov) (*Chrysura*)\* 492  
*longiceps* Bohart (*Ceratochrysis*)\* 309  
*longicollis* Abeille (*Hedychrum*)\* 216

- longicollis* Mocsáry (*Chrysis*)\* 433  
*longicornis* Krombein (*Indotbrix*)\* 115  
*longicornis* (Tournier) (*Elampus*) 171  
*longidens* Mocsáry (*Chrysis*)\* 433  
*longifacies* Kimsey (*Adelphæ*)\* 86  
*longigena* Mocsáry (*Chrysis*)\* 433  
*longigenis* (Linsenmaier) (*Primeuchroeus*)\* 542  
*longimala* Bohart (*Ceratochrysis*)\* 309  
*longipilis* (Mocsáry) (*Chrysura*)\* 492  
*longipilis* Tournier (*Hedychrum*) 217  
*longirostris* Gribodo (*Chrysis*)\* 433  
*longispina* (Mocsáry) (*Trichrysis*)\* 572  
*longissima* Buysson (*Chrysis*)\* 433  
*longitarsis* (Linsenmaier) (*Pleurochrysis*)\* 526  
*longiventris* (Ducke) (*Ipsiura*)\* 510  
*longula* Abeille (*Chrysis*)\* 433  
*loricata* Edney (*Chrysis*) 434  
*Lorochrysis* Kimsey and Bohart 297  
*louisianæ* Norton (*Hedychrum*) 221  
*lucasi* (Abeille) (*Chrysura*) 491  
*lucens* Semenov (*Chrysis*)\* 434  
*lucida* (Lepeletier) (*Holopyga*) 233  
*lucida* Linsenmaier (*Chrysis*)\* 434  
*lucidiventre* Semenov (*Hedychridium*)\* 198  
*lucidulum* (Fabricius) (*Hedychrum*) 217  
*lucifera* Bohart (*Chrysis*)\* 434  
*lucilla* Balthasar (*Chrysis*)\* 434  
*lucinda* Nurse (*Chrysis*) 479  
*luculentum* Förster (*Hedychrum*)\* 216  
*ludmilla* (Semenov) (*Chrysura*)\* 492  
*lugubre* Cameron (*Hedychrum*)\* 216  
*lunigera* (Dahlbom) (*Caenochrysis*) 301  
*lusca* (Fabricius) (*Praestochrysis*)\* 533  
*lusitanica* (Bischoff) (*Chrysis*)\* 434  
*Lustrina* Kurian 53  
*luteipenne* Linsenmaier (*Hedychridium*)\* 198  
*luteum* Zimmermann (*Hedychridium*)\* 198  
*luzonæ* Bohart (*Praestochrysis*)\* 533  
*luzonense* Rohwer (*Stilbum*) 567  
*luzonica* (Mocsáry) (*Trichrysis*)\* 572  
*luzulina* Dahlbom (*Holopyga*)\* 233  
*lydenburgense* Bischoff (*Hedychrum*)\* 216  
*lydenburgensis* (Bischoff) (*Chrysis*) 397  
*lydiæ* (Mocsáry) (*Chrysura*)\* 492  
*lyncea* auct. (*Chrysis*) 433  
*lynchi* (Brêthes) (*Pleurochrysis*)\* 527  
*maai* (Lin) (*Loboscelidia*)\* 147  
*macedonicum* Trautmann (*Stilbum*) 567  
*macrodon* Mocsáry (*Chrysis*)\* 434  
*macrognatha* Mocsáry (*Chrysis*)\* 434  
*macrostoma* (Gribodo) (*Chrysura*) 487  
*macswaini* (Bohart and Campos) (*Pseudomalus*) 268  
*macula* Bohart (*Chrysis*)\* 435  
*maculata* (Fabricius) (*Holopyga*)\* 233  
*maculata* Kimsey (*Loboscelidia*)\* 147  
*maculata* Mocsáry (*Chrysis*) 435  
*maculatum* Edney (*Hedychridium*) 198  
*maculatum* Trautmann (*Hedychridium*) 202  
*maculatus* (Buysson) (*Pseudomalus*) 266  
*maculatus* Linsenmaier (*Cleptes*)\* 61  
*maculicornis* Klug (*Chrysis*)\* 435  
*maculigera* Mocsáry (*Chrysis*)\* 435  
*maculipennis* Fouts (*Loboscelidia*) 146  
*maculitarsis* (Linsenmaier) (*Primeuchroeus*)\* 542  
*maculiventre* Linsenmaier (*Hedychridium*) 200  
*maculum* Kimsey (*Hedychridium*)\* 198  
*madecassa* Mocsáry (*Chrysis*)\* 435  
*madecassus* Saussure (*Parnopes*)\* 586  
*madecassus* (Zimmermann) (*Elampus*)\* 168  
*maderi* Linsenmaier (*Chrysis*)\* 435  
*madridensis* Buysson (*Chrysis*) 434  
*Magdaliim* Kimsey\* 81, 120  
*magnidens* Perez (*Chrysis*) 420  
*magnifica* (Dahlbom) (*Spinolia*) 552  
*magnifica* (Ducke) (*Cleptidea*)\* 69  
*magnitudina* Linsenmaier (*Chrysis*)\* 435  
*magrettii* (Buysson) (*Chrysura*)\* 492  
*magrettii* (Buysson) (*Omalus*)\* 248  
*maharadsha* Mocsáry (*Chrysis*)\* 435  
*maharani* Mocsáry (*Chrysis*) 470  
*Mahinda* Krombein\* 79, 80, 122  
*maindroni* Buysson (*Chrysis*)\* 435  
*maja* Shuckard (*Chrysis*) 420  
*malachitica* Dahlbom (*Chrysis*)\* 435  
*malachitica* Smith (*Chrysis*) 401  
*malagassum* Buysson (*Hedychridium*)\* 198  
*malayana* Tsuneki (*Chrysis*)\* 436  
*malayensis* (Linsenmaier) (*Primeuchroeus*)\* 542  
*malaysiae* Kimsey (*Rhadinosceldia*)\* 150  
*malaysiana* Kimsey (*Isegama*)\* 117  
*mallorcanica* Linsenmaier (*Chrysis*) 414  
*mallorcanus* Linsenmaier (*Omalus*) 247  
*manchurianum* Tsuneki (*Hedychrum*)\* 216  
*mandarina* (Mocsáry) (*Praestochrysis*) 534  
*mandibularis* Buysson (*Chrysis*)\* 436  
*mandsuricus* Móczár (*Cleptes*)\* 61  
*mane* Semenov (*Chrysis*)\* 436  
*manicata* Dahlbom (*Chrysis*)\* 436  
*maracandensis* Radoszkowski (*Chrysis*)\* 436  
*marani* Balthasar (*Chrysis*)\* 436  
*margareta* (Trautmann) (*Spintharina*) 557  
*margaritaceum* (Semenov and Nikol'skaya) (*Hedychridium*)\* 198  
*marginata* Linsenmaier (*Chrysis*) 456  
*marginata* Semenov (*Holopyga*)\* 233  
*marginianus* (Semenov) (*Omalus*)\* 248  
*marginalis* (Brullé) (*Ipsiura*)\* 510  
*marginalis* Schenck (*Chrysis*) 382  
*marginata* Mocsáry (*Chrysis*)\* 436  
*marginatus* Patton (*Elampus*)\* 168  
*marginatus* (Provancher) (*Omalus*) 248  
*marginella* Mocsáry (*Chrysis*) 450  
*marginellus* (Mocsáry) (*Holophris*)\* 225  
*mariae* Buysson (*Chrysis*) 469  
*marianum* Mocsáry (*Hedychrum*) 214  
*marianum* Uchida (*Hedychrum*) 220  
*maricopæ* Bohart (*Hedychridium*)\* 198  
*maroccana* Mocsáry (*Chrysis*) 465  
*maroccanus* Linsenmaier (*Cleptes*) 62  
*maroccense* Linsenmaier (*Hedychridium*)\* 199  
*marqueti* (Buysson) (*Pseudospinolia*)\* 547  
*marteni* Linsenmaier (*Chrysis*) 461  
*marteni* Linsenmaier



- (Hedychridium)\** 199  
*maria* (Patton) (*Chrysura*)\* 493  
*martinella* Buysson (*Chrysis*)\* 436  
*martynovi* Semenov (*Hedychrum*) 212  
*masadunense* Lefebvre  
*(Hedychridium)\** 199  
*masalskii* (Semenov) (*Pseudomalus*)\* 268  
*masneri* Kimsey (*Adelpe*)\* 86  
*massaicum* Cameron (*Hedychrum*)\* 216  
*mastersoni* Edney (*Chrysis*) 446  
*mathani* (Ducke) (*Caenochrysis*)\* 303  
*matrona* Semenov (*Chrysis*) 436  
*mattheyi* Linsenmaier (*Holopyga*)\* 233  
*mattegrossensis* Brèthes (*Chrysis*) 451  
*matutina* Semenov (*Chrysis*)\* 437  
*mauritanica* (Lucas) (*Holopyga*)\* 233  
*mauritanica* Trautmann (*Chrysis*)\* 437  
*mauriti* Buysson (*Chrysis*)\* 437  
*mavromoustakisi* Enslin (*Hedychridium*) 196  
*mavromoustakisi* Enslin (*Holopyga*)\* 233  
*mavromoustakisi* Trautmann (*Chrysis*)\* 437  
*mavromoustakisi* Trautmann (*Hedychrum*)\* 216  
*maximum* Bischoff (*Hedychrum*)\* 216  
*mayeti* Buysson (*Cleptes*)\* 61  
*meaculpa* Krombein (*Isegama*)\* 117  
*meadevaldoi* Mocsáry (*Chrysis*)\* 437  
*meda* (Semenov) (*Hedychridium*)\* 199  
*medanae* (Buysson) (*Philoctetes*)\* 256  
*medea* Balthasar (*Chrysis*)\* 437  
*medea* (Semenov) (*Chrysura*) 495  
*mediadentata* Linsenmaier (*Chrysis*) 437  
*mediana* Linsenmaier (*Chrysis*) 424  
*mediata* Linsenmaier (*Chrysis*)\* 437  
*medinai* Buysson (*Cleptes*) 59  
*mediocrate* Kimsey 199  
*mediocre* Linsenmaier (*Hedychridium*) 204  
*mediocris* Dahlbom 1845 (*Chrysis*)\* 437  
*mediocris* Dahlbom 1854 (*Chrysis*) 467  
*mediocrum* Linsenmaier (*Hedychridium*) 199  
*medus* Semenov (*Cephaloparnops*) 578  
*medvedevi* Semenov (*Hedychridium*)\* 199  
*medvedevi* Semenov (*Holopyga*)\* 233  
*megacephala* Dahlbom (*Chrysis*)\* 438  
*megæra* Edney (*Chrysis*) 472  
*megerlei* (Dahlbom) (*Praestochrysis*)\* 533  
*melaensis* Linsenmaier (*Chrysis*) 421  
*Melanocleptes* Móczár 54  
*melanogaster* Mercet (*Hedychridium*) 188  
*melanophrys* Mocsáry (*Chrysis*)\* 438  
*melanops* Kirby (*Chrysis*) 425  
*melpomene* Balthasar (*Chrysis*)\* 438  
*mendax* (Abeille) (*Chrysura*) 497  
*mendialis* (Cameron) (*Trichrysis*)\* 573  
*mendozaana* (Mocsáry) (*Pleurochrysis*) 526  
*menkei* Bohart (*Ceratochrysis*)\* 309  
*menkei* Bohart (*Hedychridium*)\* 199  
*menyharti* Mocsáry (*Chrysis*) 438  
*menzbieri* Semenov (*Hedychrum*)\* 216  
*merceti* Kimsey (*Holopyga*)\* 234  
*merceti* (Trautmann) (*Chrysis*)\* 438  
*meridionalis* (Linsenmaier) (*Caenochrysis*) 303  
*mesasiatica* Semenov (*Chrysis*) 402  
*mesembrina* Semenov and Nikol'skaya (*Chrysis*) 473  
*mesillae* (Cockerell) (*Argochrysis*)\* 292  
*Mesitiopterus* Ashmead 90  
*mesochlora* Mocsáry (*Chrysis*)\* 438  
*mesocyanea* Mocsáry (*Chrysis*)\* 438  
*meta* Aaron (*Chrysis*)\* 438  
*metallica* (Dahlbom) (*Holopyga*)\* 234  
*metallica* Fouts (*Robweria*)\* 136  
*metallica* (Kieffer) (*Adelpe*)\* 86  
*mexicana* (Guérin) (*Caenochrysis*) 305  
*mexicana* Mocsáry (*Adelpe*)\* 86  
*mexicanum* (Cameron) (*Hedychridium*) 192  
*mexicanum* (Mocsáry) (*Hedychridium*) 192  
*mexicanus* Mocsáry (*Elampus*) 169  
*meyeri* Linsenmaier (*Chrysis*) 380  
*meyeri* Trautmann (*Hedychridium*) 202  
*mezadana* Linsenmaier (*Chrysis*)\* 438  
*micans* (Klug) (*Philoctetes*) 254  
*micans* Lucas (*Hedychrum*)\* 216  
*micans* (Olivier) (*Pseudomalus*) 270  
*micans* Rossi (*Chrysis*) 475  
*micans* Trautmann (*Hedychrum*) 219  
*Microbridium* Bohart\* 159, 236  
*microgona* Mocsáry (*Chrysis*) 430  
*micromorpha* (Mocsáry) (*Praestochrysis*)\* 533  
*Microsega* Krombein\* 79, 123  
*microsoma* (Mocsáry) (*Trichrysis*) 572  
*microtrema* Mocsáry (*Chrysis*) 463  
*midas* Buysson (*Chrysis*) 433  
*miegii* Guérin (*Chrysis*) 399  
*milani* Balthasar (*Chrysis*) 401  
*miliare* (Cameron) (*Holopyga*) 233  
*millenaris* Mocsáry (*Chrysis*)\* 438  
*milleri* Kimsey (*Hedychridium*)\* 199  
*mima* Kimsey (*Cleptidea*)\* 69  
*mimema* Kimsey (*Holopyga*)\* 234  
*mina* Bohart (*Chrysis*)\* 439  
*minata* Bohart (*Ceratochrysis*)\* 309  
*minimus* (Dufour and Perris) (*Pseudomalus*) 265  
*minor* (Buysson) (*Chrysidea*) 313  
*minor* (Ducke) (*Cleptidea*) 69  
*minor* Edney (*Holopyga*) 232  
*minor* Krombein (*Robweria*)\* 136  
*minor* Mocsáry (*Allocoelia*) 276  
*minor* (Mocsáry) (*Chrysura*) 488  
*minor* (Mocsáry) (*Pseudospinolia*) 547  
*minuma* Linsenmaier (*Holopyga*)\* 234  
*minusculum* Buysson (*Hedychrum*) 212  
*minuta* Mocsáry (*Chrysis*) 439  
*minuta* (Mocsáry) (*Pseudospinolia*) 547  
*minuta* (Mocsáry) (*Trichrysis*) 571  
*minutissima* Radoszkowski (*Chrysis*)\* 439  
*minutissimum* Mercet (*Hedychridium*)\* 199  
*minutissimus* (Brèthes) (*Holopris*)\* 225  
*minutula* Schenck (*Chrysis*) 468  
*minutulus* (Schenck) (*Elampus*) 170  
*minutum* Bohart (*Microbridium*)\* 238  
*minutum* (Lepelletier) (*Hedychridium*) 187  
*minutus* Marquet (*Omalus*) 246  
*minutus* (Wesmael) (*Pseudomalus*) 268  
*Minymischa* Kimsey\* 159, 238



- miocenica* Rohwer (*Chrysis*) 15  
*mionii* Guérin (*Chrysis*)\* 439  
*mir* Mocsáry (*Chrysis*)\* 439  
*mirabile* Kimsey (*Hedychridium*)\* 199  
*mirabilis* Radoszkowski (*Chrysis*)\* 439  
*miramae* Semenov (*Hedychridium*)\* 199  
*miramae* (Semenov) (*Omalus*)\* 249  
*miranda* Abeille (*Holopyga*)\* 234  
*miri* (Brown) (*Trichrysis*) 574  
*miricolor* Morice (*Hedychridium*) 193  
*mirifica* Balthasar (*Chrysis*)\* 439  
*mirum* Bohart (*Hedychreides*)\* 180  
*misdroeyensis* Trautmann (*Hedychridium*) 202  
*misella* Buysson (*Chrysis*)\* 439  
*misshimaensis* Tsuneki (*Cleptes*)\* 61  
*missionera* (Brethes) (*Pleurochrysis*) 525  
*mistrasensis* (Linsenmaier) (*Chrysura*)\* 493  
*mitras* Semenov (*Hedychrum*)\* 216  
*mixta* Dahlbom (*Chrysis*)\* 439  
*mlada* Semenov (*Spinolia*) 551  
*mlokosewitszi* Radoszkowski (*Chrysis*)\* 440  
*mlokosiewitszi* (Radoszkowski) (*Holopyga*)\* 234  
*mochii* (Zimmermann) (*Chrysis*)\* 440  
*moquarysi* Buysson (*Chrysis*)\* 440  
*mocsariana* Semenov (*Chrysis*)\* 440  
*mocsarii* Semenov (*Cleptes*)\* 61  
*mocsaryi* Ducke (*Amisega*)\* 93  
*mocsaryi* (Bischoff) (*Primeuchroeus*)\* 542  
*mocsaryi* (Brauns) (*Allocoelia*)\* 276  
*mocsaryi* Radoszkowski (*Chrysis*)\* 440  
*mocsaryi* Radoszkowski (*Elampus*)\* 168  
*mocsaryi* (Radoszkowski) (*Spintharina*) 558  
*moczari* Linsenmaier (*Chrysis*) 379  
*moczari* Linsenmaier (*Cleptes*)\* 61  
*modesta* Mocsáry (*Chrysis*)\* 440  
*modesta* Tournier (*Chrysis*) 461  
*modestior* (Morice) (*Chrysura*)\* 493  
*modestum* Buysson (*Hedychridium*)\* 199  
*modica* Dahlbom (*Chrysis*) 437  
*modica* (Linsenmaier) (*Spinolia*)\* 552  
*moesta* Semenov (*Chrysis*)\* 440  
*mongoliana* Bohart (*Chrysis*)\* 440  
*mongolica* (Mocsáry) (*Trichrysis*) 571  
*mongolica* Semenov (*Chrysis*) 440  
*mongolica* (Tsuneki) (*Brugmoia*) 296  
*mongolicum* Tsuneki (*Hedychridium*) 188  
*mongolicus* (Buysson) (*Philoctetes*) 256  
*monochroa* Mocsáry (*Chrysis*)\* 440  
*monochroma* Mocsáry (*Chrysis*) 455  
*monochroum* Buysson (*Hedychridium*)\* 199  
*Monochrysis* Lichtenstein 480  
*monotona* Linsenmaier (*Neochrysis*)\* 515  
*montana* Aaron (*Chrysis*)\* 440  
*montanus* (Mocsáry) (*Elampus*)\* 168  
*montezuma* (Cameron) (*Neochrysis*)\* 516  
*monticelli* (Buysson) (*Chrysidea*)\* 314  
*monticola* Balthasar (*Holopyga*)\* 234  
*monticola* (Tsuneki) (*Philoctetes*)\* 256  
*montivaga* Mocsáry (*Chrysis*)\* 440  
*moorei* Bohart (*Chrysis*)\* 441  
*morawitzi* (Mocsáry) (*Spinolia*)\* 552  
*morawitzi* Radoszkowski (*Cleptes*)\* 61  
*mordilkoii* (Semenov) (*Pseudomalus*)\* 268  
*moriceana* Buysson (*Chrysis*)\* 441  
*moricei* (Buysson) (*Brugmoia*)\* 295  
*moricei* Buysson (*Hedychridium*)\* 200  
*morosa* (Buysson) (*Pleurochrysis*)\* 527  
*morosum* Buysson (*Hedychrum*)\* 216  
*mossulensis* Buysson (*Chrysis*) 383  
*mosulensis* Linsenmaier (*Chrysis*)\* 441  
*mouattii* Guérin (*Chrysis*)\* 441  
*micronata* (Brullé) (*Caenochrysis*)\* 303  
*micronata* Dahlbom (*Chrysis*) 429  
*micronatum* Zimmermann (*Hedychrum*)\* 216  
*micronifera* Abeille (*Chrysis*) 429  
*micronifera* Mocsáry (*Chrysis*) 429  
*muelleri* Buysson (*Chrysis*) 421  
*muelleri* (Trautmann) (*Omalus*) 247  
*Muesebeckidium* Krombein\* 160, 241  
*multisanti* (Abeille) (*Chrysura*) 495  
*multicolor* (Walker) (*Chrysura*)\* 493  
*munita* Buysson (*Chrysis*)\* 441  
*murasaki* Uchida (*Chrysis*) 383  
*murgabi* Radoszkowski (*Chrysis*) 435  
*murgrabi* Radoszkowski (*Chrysis*) 435  
*musa* Semenov (*Chrysis*)\* 441  
*musahinus* (Tsuneki) (*Elampus*)\* 169  
*mutabilis* Buysson (*Chrysis*)\* 441  
*mutans* (Buysson) (*Elampus*) 171  
*mutata* Edney (*Chrysis*) 406  
*mutata* Mocsáry (*Chrysis*)\* 442  
*mutense* Linsenmaier (*Hedychridium*) 202  
*muti* Móczár (*Cleptes*)\* 61  
*mutica* (Ducke) (*Caenochrysis*) 303  
*mutica* (Förster) (*Chrysura*) 495  
*mutilloides* (Ducke) (*Cleptidea*)\* 69  
*mutilloides* Krombein (*Alieniscus*)\* 90  
*mutincisa* Linsenmaier (*Chrysis*)\* 442  
*myops* (Buysson) (*Ipsiura*)\* 510  
*Myrmecomimesis* Dalla Torre\* 79, 81, 125  
*myrmecophila* (Kieffer) (*Colocar*)\* 106  
*Myrmecopsis* Walker 125  
*mysta* Buysson (*Chrysis*)\* 442  
*mysticalis* Linsenmaier (*Chrysis*)\* 442  
*mysticum* Semenov (*Hedychridium*)\* 200  
*nadigorum* Bischoff (*Chrysis*) 416  
*naefi* Linsenmaier (*Chrysis*) 460  
*naefi* Linsenmaier (*Holopyga*)\* 234  
*naia* Semenov (*Chrysis*) 399  
*naila* Buysson (*Chrysis*) 390  
*naila* (Mocsáry) (*Chrysura*) 495  
*namaquensis* Mocsáry (*Chrysis*) 393  
*namibianum* Kimsey (*Hedychridium*)\* 200  
*namibica* Bohart (*Chrysis*)\* 442  
*namibiensis* Kimsey (*Elampus*)\* 169  
*nana* Mocsáry (*Chrysis*) 408  
*nankinensis* Linsenmaier (*Chrysis*) 458  
*nanula* Rohwer (*Chrysis*) 443  
*nanum* (Chevrier) (*Hedychridium*) 203  
*nanus* (Saunders) (*Omalus*)\* 249  
*napoana* Kimsey (*Cleptidea*)\* 69  
*nasiclepeata* (Linsenmaier) (*Caenochrysis*) 304  
*nasuta* Mocsáry (*Chrysis*)\* 442  
*natalense* Mocsáry (*Hedychrum*)\* 217

- natalensis* Krombein (*Reidia*)\* 134  
*natalensis* Mocsáry (*Chrysis*) 446  
*natalica* (Mocsáry) (*Praestochrysis*) 532  
*naera* Semenov (*Chrysis*)\* 442  
*nearctica* (Mocsáry) (*Ceratochrysis*)\* 310  
*nearcticum* Mocsáry (*Hedychrum*) 212  
*neglecta* (Shuckard) (*Pseudospinolia*)\* 548  
*neglectoides* (Linsenmaier) (*Pseudospinolia*)\* 548  
*negusi* Mocsáry (*Chrysis*) 404  
*Nemophora* Dahlbom 315  
*neobule* Semenov (*Chrysis*)\* 442  
*Neochrysis* Linsenmaier\* 284, 512  
*Neocleptes* Kimsey 54  
*neolateralis* (Bohart) (*Ipsiura*)\* 510  
*Neospinolia* Linsenmaier 544  
*neotropica* (Brues) (*Cleptidea*)\* 69  
*neotropicum* Mocsáry (*Hedychrum*)\* 217  
*neptunia* (Semenov) (*Trichrysis*) 571  
*Nesogyne* Krombein\* 80, 128  
*nesos* Kimsey (*Adelphe*)\* 86  
*nevadae* Kimsey (*Hedychridium*)\* 200  
*nevadensis* Linsenmaier (*Chrysis*) 386  
*nevelskiana* Semenov (*Chrysis*)\* 442  
*nidia* (Mocsáry) (*Praestochrysis*)\* 533  
*nidicola* (Bischoff) (*Chrysis*)\* 442  
*nimelai* Linsenmaier (*Hedychrum*)\* 217  
*nigeriaca* (Mocsáry) (*Praestochrysis*) 532  
*nigra* Edney (*Allocoelia*) 276  
*nigra* Fouts (*Loboscelidia*)\* 147  
*nigrescens* Edney (*Chrysis*) 405  
*nigricans* (Tsuneki) (*Pseudomalus*) 269  
*nigricans* (Walker) (*Myrmecomimesis*)\* 127  
*nigricephala* Kimsey (*Loboscelidia*)\* 147  
*nigricincta* (Bischoff) (*Chrysis*)\* 443  
*nigricornis* Fouts (*Loboscelidia*) 147  
*nigridorsa* (Linsenmaier) (*Pleurochrysis*)\* 527  
*nigridorsus* (Tsuneki) (*Pseudomalus*) 266  
*nigripedice* (Riek) (*Myrmecomimesis*)\* 127  
*nigritborax* (Riek) (*Myrmecomimesis*)\* 128  
*nigritus* Mercet (*Cleptes*)\* 62  
*nigriventer* Bohart (*Ipsiura*)\* 510  
*nigrocincta* (Kieffer) (*Cleptidea*)\* 69  
*nigrocyanum* Edney (*Hedychrum*)\* 217  
*nigrofemoratum* Bischoff (*Hedychrum*)\* 217  
*nigromaculata* (Bischoff) (*Praestochrysis*)\* 533  
*nigromaculatum* Edney (*Hedychrum*) 217  
*nigropilosa* Tsuneki (*Chrysis*)\* 443  
*nigropilosum* Mocsáry (*Hedychrum*)\* 217  
*nigropolita* (Bischoff) (*Caenochrysis*)\* 303  
*nikitini* (Semenov) (*Chrysur*) 491  
*nikolskii* (Semenov) (*Philoctetes*)\* 256  
*nila* Bingham (*Chrysis*)\* 443  
*nilensis* Linsenmaier (*Chrysis*)\* 443  
*nilica* Linsenmaier (*Chrysis*)\* 443  
*niloticus* (Morice) (*Cephaloparnops*) 578  
*niponica* Uchida (*Chrysis*)\* 443  
*nipponica* Linsenmaier (*Chrysis*) 434  
*nipponicola* Linsenmaier (*Chrysis*) 434  
*nipponicus* (Tsuneki) (*Pseudomalus*)\* 268  
*nisseri* Dahlbom (*Chrysis*)\* 443  
*nitens* Hoffer (*Hedychridium*) 203  
*nitens* (Ducke) (*Exochrysis*) 503  
*nitida* (Lepeletier) (*Holopyga*) 231  
*nitidula* Dahlbom (*Holopyga*)\* 234  
*nitidula* Fabricius (*Chrysis*)\* 443  
*nitidula* Germar (*Chrysis*) 413  
*nitidulaeformis* (Bischoff) (*Chrysis*) 480  
*nitidularia* Mocsáry (*Chrysis*) 412  
*nitidulus* (Fabricius) (*Cleptes*)\* 62  
*nitidulus* (Panzer) (*Omalus*) 245  
*nitidus* (Aaron) (*Elampus*)\* 169  
*nitidus* (Marquet) (*Omalus*) 246  
*nitidus* (Panzer) (*Pseudomalus*) 270  
*nivifrons* (Semenov) (*Hedychridium*) 194  
*nixonii* Day (*Loboscelidia*)\* 147  
*nobile* (Scopoli) (*Hedychrum*)\* 217  
*nobile* (Sulzer) (*Stilbum*) 567  
*nobiliforme* Semenov (*Hedychrum*) 216  
*nobilis* Klug (*Chrysis*) 466  
*nobilis* (Trautmann) (*Chrysur*) 497  
*nobirai* Tsuneki (*Chrysis*)\* 444  
*nokomis* Rohwer (*Chrysis*) 423  
*nomima* Buysson (*Chrysis*) 469  
*nordstroemi* Hellen (*Chrysis*) 478  
*norsemanae* Bohart (*Chrysis*)\* 444  
*nortoni* Aaron (*Chrysis*) 443  
*noskiewiczii* (Trautmann) (*Brugmoia*) 296  
*noskiewiczii* (Trautmann) (*Chrysis*) 468  
*nostra* Radoszkowski (*Chrysis*) 407  
*notidana* Bohart (*Chrysis*)\* 444  
*Notozus* Forster 163  
*nova* Radoszkowski (*Chrysis*) 436  
*novaequinae* (Cameron) (*Chrysis*) 411  
*novarae* Mocsáry (*Chrysis*) 174  
*novarae* (Mocsáry) (*Exallopyga*) 421  
*novella* Magretti (*Chrysis*)\* 444  
*novobritannica* Cameron (*Chrysis*) 400  
*novoguineana* Kimsey (*Loboscelidia*)\* 147  
*nox* Semenov (*Chrysis*)\* 444  
*nubica* Buysson (*Chrysis*)\* 444  
*nugatrix* (Bingham) (*Caenochrysis*) 305  
*numerata* Mocsáry (*Chrysis*)\* 444  
*numidica* (Lucas) (*Holopyga*)\* 234  
*nupela* Krombein (*Exopapua*)\* 110  
*nursei* Bingham (*Chrysis*)\* 234  
*nursei* Bingham (*Holopyga*)\* 444  
*nyansana* Mocsáry (*Chrysis*) 430  
*nymphae* Semenov (*Spinolia*) 551  
*Oar* Semenov 226  
*oaxacae* Bohart (*Ipsiura*)\* 510  
*Obenbergerella* Strand\* 78, 130  
*obenbergeri* (Balthasar) (*Chrysur*) 490  
*oberthuri* (Buysson) (*Cephaloparnops*)\* 578  
*oberthuri* Buysson (*Chrysis*) 439  
*obesus* (Mocsáry) (*Elampus*)\* 169  
*obidana* Bohart (*Ipsiura*)\* 511  
*obidensis* (Ducke) (*Ipsiura*)\* 511  
*oblata* (Nurse) (*Spinolia*) 552  
*obliquata* (Linsenmaier) (*Chrysur*)\* 493  
*obliquum* Edney (*Hedychrum*)\* 218  
*oblita* Bohart (*Chrysis*)\* 444  
*obliterata* (Abeille) (*Chrysur*) 497  
*obliterata* Mocsáry (*Chrysis*) 444  
*oblonga* Cresson (*Chrysis*)\* 444

- obscura* Radoszkowski (*Chrysis*) 461  
*obscura* Smith (*Chrysis*)\* 444  
*obscurata* (Mocsáry) (*Trichrysis*) 572  
*obscuratum* (Mocsáry) (*Hedychridium*)\* 200  
*obscuratum* (Semenov and Nikol'skaya) (*Hedychridium*) 194  
*obscuripes* Buysson (*Hedychrum*)\* 218  
*obscuriventris* (Linsenmaier) (*Spintharina*) 558  
*obscuriventris* Mocsáry (*Chrysis*) 433  
*obscurum* Tournier (*Hedychrum*) 214  
*obscurus* (Tournier) (*Pseudomalus*) 266  
*observata* Buysson (*Chrysis*) 422  
*obsoleta* Dahlbom (*Chrysis*) 420  
*obsoletum* (Say) (*Muesebeckidium*)\* 243  
*obsoletus* Semenov (*Cleptes*)\* 62  
*obtusata* Mocsáry (*Chrysis*)\* 445  
*obtusidens* Dufour and Perris (*Chrysis*)\* 445  
*obtusiventris* Förster (*Chrysis*) 467  
*obtusus* (Buysson) (*Holophris*)\* 225  
*occidentalis* Linsenmaier (*Holopyga*) 229  
*occidentale* Krombein (*Muesebeckidium*)\* 243  
*occidentalis* (Linsenmaier) (*Philotetes*) 256  
*occidentalis* Mocsáry (*Chrysis*)\* 445  
*occidentica* (Linsenmaier) (*Pentachrysis*) 522  
*occulta* (Mader) (*Praestochrysis*) 533  
*oceanica* Mocsáry (*Chrysis*) 425  
*ocellata* Blanchard (*Chrysis*) 412  
*octavii* Buysson (*Chrysis*) 396  
*Octochrysis* Mocsáry 316  
*oculata* Fabricius (*Chrysis*)\* 445  
*oculatissima* (Buysson) (*Brugmoia*)\* 295  
*odessa* Linsenmaier (*Chrysis*) 392  
*Odontochrydium* Brauns\* 283, 517  
*ognevi* Semenov (*Chrysis*)\* 445  
*okai* Tsuneki (*Hedychrum*)\* 218  
*olene* Kimsey (*Hedychridium*)\* 200  
*olgae* Semenov (*Chrysis*)\* 445  
*olgae* (Semenov) (*Elampus*) 170  
*oligotrema* Mocsáry (*Chrysis*) 430  
*oliveirii* Radoszkowski (*Chrysis*) 437  
*olivieri* (Brullé) (*Caenochrysis*) 305  
*Olochrysis* Lichtenstein 480  
*omaloides* Buysson (*Philoctetes*)\* 256  
*Omalus* Panzer\* 161, 243  
*Ootheres* Riek 125  
*opaca* Gribodo (*Chrysis*)\* 445  
*opaca* Linsenmaier (*Chrysis*) 415  
*opacocerulea* (Bischoff) (*Chrysis*) 438  
*opacula* Buysson (*Chrysis*)\* 445  
*optima* (Aaron) (*Chrysura*) 491  
*opulenta* Mocsáry (*Chrysis*)\* 445  
*ora* Kimsey (*Loboscelidia*)\* 148  
*oraniensis* (Lucas) (*Chrysura*)\* 493  
*oraria* Bohart (*Chrysis*)\* 445  
*ordinata* Buysson (*Chrysis*)\* 445  
*ordinatum* Edney (*Hedychrum*)\* 218  
*oreadis* Bohart (*Chrysis*)\* 446  
*orgopia* (Linsenmaier) (*Chrysura*) 495  
*oriensa* Linsenmaier (*Holopyga*) 229  
*orientalis* (Buysson) (*Chrysis*) 495  
*orientalis* Dahlbom (*Chrysis*) 444  
*orientalis* Dahlbom (*Cleptes*)\* 62  
*orientalis* Guérin (*Chrysis*)\* 446  
*orientalis* Mocsáry (*Chrysis*) 399  
*orientalis* (Smith) (*Holopyga*)\* 234  
*orientica* Linsenmaier (*Chrysis*) 399  
*orientis* (Balthasar) (*Chrysura*) 495  
*orientis* (Semenov) (*Brugmoia*) 296  
*orientis* (Trautmann) (*Chrysis*) 476  
*orionea* Linsenmaier (*Chrysis*) 454  
*ornata* Schenck (*Chrysis*) 458  
*ornata* Smith (*Chrysis*) 477  
*ornatrix* Christ (*Chrysis*) 412  
*oshanini* (Semenov) (*Chrysura*) 489  
*oshanini* Semenov (*Hedychridium*)\* 200  
*osiris* (Buysson) (*Chrysura*)\* 493  
*osmia* (Thomson) (*Chrysura*) 490  
*ottomana* (Mocsáry) (*Chrysura*)\* 493  
*ovata* Dahlbom (*Holopyga*) 228  
*ovidii* Semenov (*Chrysis*)\* 446  
*oxyacantha* Mocsáry (*Chrysis*)\* 446  
*Oxyycleptes* Móczár 54  
*oxygona* Mocsáry (*Chrysis*)\* 446  
*pachysoma* Mocsáry (*Chrysis*)\* 446  
*pachystoma* Mocsáry (*Chrysis*)\* 446  
*pacifica* (Say) (*Chrysura*)\* 494  
*pacificum* Linsenmaier (*Stilbum*) 567  
*padri* Linsenmaier (*Holopyga*) 230  
*palawanensis* (Mocsáry) (*Praestochrysis*)\* 534  
*palestinense* Balthasar (*Hedychridium*) 200  
*palifera* (Bischoff) (*Chrysis*) 431  
*pallasi* (Semenov) (*Elampus*)\* 169  
*pallidicornis* Spinola (*Chrysis*)\* 446  
*palliditarsis* Edney (*Hedychrum*)\* 218  
*palliditarsis* Spinola (*Chrysis*)\* 446  
*pallidolimbata* (Ducke) (*Exallopyga*) 174  
*pallipes* Lepeletier (*Cleptes*)\* 62  
*pallipes* (Tournier) (*Hedychridium*) 194  
*pallispinosus* (Walker) (*Cephaloparnops*) 578  
*palmachinensis* Linsenmaier (*Chrysis*) 386  
*panamensis* (Cameron) (*Exochrysis*)\* 503  
*panamensis* Kimsey (*Cleptidea*)\* 70  
*pandianii* Mantero (*Chrysis*)\* 447  
*pannonica* Hoffmann (*Chrysis*) 468  
*panzeri* (Fabricius) (*Elampus*) 170  
*Papuachrysis* Linsenmaier 535  
*papuana* (Cameron) (*Praestochrysis*) 533  
*papuana* Mocsáry (*Chrysis*) 433  
*papuanus* (Linsenmaier) (*Primeuchroeus*)\* 543  
*papuanus* (Mocsáry) (*Primeuchroeus*) 542  
*par* (Semenov) (*Brugmoia*) 296  
*paraca* (Linsenmaier) (*Caenochrysis*)\* 303  
*Parachrum* Kimsey\* 160, 249  
*Parachrysis* Kieffer 82  
*paradisica* Bohart (*Chrysis*)\* 447  
*paradoxa* (Ducke) (*Adelphes*)\* 86  
*paradoxa* Krombein (*Anachrysis*)\* 95  
*paradoxa* Krombein (*Serendibula*)\* 140  
*paradoxus* (Linsenmaier) (*Primeuchroeus*)\* 543  
*paraense* (Ducke) (*Muesebeckidium*)\* 243  
*paraensis* (Ducke) (*Neochrysis*)\* 516  
*paraguayana* (Linsenmaier) (*Pleurochrysis*)\* 527  
*paraguayensis* (Bischoff) (*Chrysis*)\* 447  
*parallela* Brullé (*Chrysis*)\* 447  
*parallela* Smith (*Chrysis*) 421  
*paranaca* (Linsenmaier) (*Caenochrysis*)\* 303  
*parapedia* Linsenmaier (*Chrysis*) 382  
*parcepunctatum* Mader (*Stilbum*) 567  
*Parellampus* Semenov 251  
*paria* (Bingham) (*Allochrysis*)\* 228  
*parkanense* Balthasar (*Hedychridium*)\* 200



- parkeri* Bohart (*Ceratochrysis*)\* 310  
*parkeri* Moore (*Chrysis*)\* 447  
*parnassicus* Mocsáry (*Cleptes*)\* 62  
*Parnopes* Latreille\* 576, 581  
*Parnopidea* Brauns 273  
*parthenope* Mocsáry (*Chrysis*) 432  
*parthorum* Semenov (*Chrysis*)\* 447  
*particeps* (Buysson) (*Elampus*)\* 169  
*partita* Mocsáry (*Chrysis*) 400  
*parva* Maa and Yoshimoto (*Loboscelidia*)\* 148  
*parviapicalis* (Linsenmaier) (*Pleurochrysis*)\* 527  
*parvifacialis* (Linsenmaier) (*Primeuchroeus*) 534  
*parvimeciata* (Linsenmaier) (*Chrysis*)\* 447  
*parviocellaris* Linsenmaier (*Chrysis*)\* 448  
*parvula* (Fabricius) (*Caenochrysis*)\* 303  
*parvulum* Edney (*Hedychridium*) 200  
*parvulum* Mocsáry (*Hedychrum*)\* 218  
*parvulus* (Dahlbom) (*Pseudomalus*) 268  
*parvum* Aaron (*Hedychrum*)\* 218  
*pasohana* Kimsey (*Loboscelidia*)\* 148  
*pasohanus* Kimsey (*Bupon*)\* 102  
*patagonica* Mocsáry (*Chrysis*)\* 448  
*patraviensis* Linsenmaier (*Chrysis*) 436  
*patriarchalis* (Radoszkowski) (*Spintharina*) 558  
*pattonella* Viereck (*Chrysis*) 452  
*pattoni* Aaron (*Chrysis*)\* 448  
*pauloradialis* (Linsenmaier) (*Primeuchroeus*)\* 543  
*paulum* Bohart (*Hedychridium*)\* 200  
*pauperata* Mocsáry (*Chrysis*) 393  
*paveli* Mocsáry (*Chrysis*) 455  
*pavlovskii* (Semenov and Nikol'skaya) (*Allochrysis*)\* 288  
*pavlovskii* Semenov and Nikol'skaya (*Holopyga*)\* 234  
*peculiarecornis* (Linsenmaier) (*Pleurochrysis*) 527  
*pedicellaris* Kimsey (*Cleptidea*)\* 70  
*pellucida* (Buysson) (*Trichrysis*) 571  
*pellucida* Radoszkowski (*Brugmoia*)\* 296  
*pellucidula* Aaron (*Chrysis*)\* 448  
*pelopaeicida* (Buysson) (*Chrysura*)\* 494  
*peloponnense* Linsenmaier (*Hedychridium*) 193  
*penelopeia* Trautmann (*Philoctetes*) 254  
*peninsularis* Buysson (*Chrysis*)\* 448  
*pensylvanica* Brullé (*Chrysis*) 464  
*Pentachrysis* Lichtenstein\* 283, 519  
*pentapromotus* (Linsenmaier) (*Primeuchroeus*) 542  
*pentodon* (Mocsáry) (*Praestochrysis*) 532  
*pentodontophora* (Bischoff) (*Praestochrysis*)\* 534  
*penultimum* Edney (*Hedychrum*)\* 218  
*peracuta* Aaron (*Chrysis*) 399  
*peregrina* Buysson (*Chrysis*) 399  
*perexigua* Linsenmaier (*Chrysis*)\* 448  
*perezii* Mocsáry (*Chrysis*)\* 448  
*perezii* Gogorza (*Cleptes*) 59  
*perfecta* Cameron (*Chrysis*)\* 448  
*perfidum* Buysson (*Hedychrum*) 219  
*peringuezi* Mocsáry (*Chrysis*) 381  
*Perissosega* Krombein\* 81, 131  
*perplexa* Buysson (*Chrysis*)\* 448  
*perpulchra* (Cresson) (*Ceratochrysis*)\* 310  
*perpunctatum* Balthasar (*Hedychridium*)\* 200  
*perraudini* Linsenmaier (*Hedychridium*)\* 201  
*perraudini* (Linsenmaier) (*Pseudomalus*)\* 268  
*perrecta* Linsenmaier (*Chrysis*) 459  
*perrinii* Radoszkowski (*Chrysis*) 382  
*perrisi* Radoszkowski (*Chrysis*) 382  
*perscitum* Linsenmaier (*Hedychridium*)\* 201  
*persephone* (Semenov and Nikol'skaya) (*Chrysura*) 497  
*persica* (Radoszkowski) (*Chrysidea*)\* 314  
*persicum* Mocsáry (*Hedychrum*) 219  
*persis* Semenov (*Chrysis*)\* 448  
*personata* Semenov (*Chrysis*) 453  
*perthensis* (Linsenmaier) (*Chrysis*)\* 448  
*peruana* (Linsenmaier) (*Pleurochrysis*)\* 527  
*peruensis* (Mocsáry) (*Caenochrysis*) 304  
*peruviana* Buysson (*Chrysis*) 425  
*peruvica* Bohart (*Chrysis*)\* 448  
*perversum* Nurse (*Hedychridium*)\* 201  
*perviridis* Kimsey (*Amisega*)\* 93  
*pervisa* Edney (*Chrysis*)\* 449  
*petiolata* Krombein (*Afrosegia*)\* 88  
*petri* (Semenov) (*Chrysura*) 488  
*petri* (Semenov) (*Elampus*)\* 169  
*petri* (Semenov) (*Hedychrum*) 221  
*petri* (Semenov) (*Pseudomalus*)\* 268  
*pharaonum* Mocsáry (*Chrysis*)\* 449  
*philippinensis* (Bischoff) (*Chrysis*) 395  
*philippinensis* Fouts (*Loboscelidia*)\* 148  
*philippinum* Mocsáry (*Hedychrum*)\* 218  
*Philoctetes* Abeille\* 161, 251  
*phoebe* Zimmermann (*Chrysidea*)\* 314  
*phoebeus* Semenov (*Hedychrum*)\* 218  
*phoenix* Buysson (*Hedychrum*) 221  
*phoenix* Semenov (*Spinolia*) 551  
*pholoe* Semenov (*Chrysis*)\* 449  
*phragmaticola* Zimmermann (*Chrysidea*)\* 314  
*phryne* Abeille (*Chrysis*)\* 449  
*pici* (Buysson) (*Philoctetes*)\* 256  
*pici* Buysson (*Stilbum*) 567  
*picticornis* (Mocsáry) (*Chrysura*) 496  
*piliferum* Semenov (*Hedychridium*)\* 201  
*pilifrons* (Cameron) (*Ipsura*)\* 511  
*piligastre* Linsenmaier (*Hedychridium*)\* 201  
*piliventris* Ducke (*Holopyga*)\* 234  
*pilosa* (Bischoff) (*Chrysis*) 408  
*pilosolateralis* Linsenmaier (*Chrysis*)\* 449  
*pilosissima* (Bischoff) (*Chrysura*)\* 494  
*pilosula* Bohart (*Chrysis*)\* 449  
*placae* Linsenmaier (*Hedychridium*)\* 201  
*placida* Mocsáry (*Chrysis*) 422  
*plagiata* Mocsáry (*Chrysis*)\* 449  
*plagiatum* (Mocsáry) (*Hedychridium*)\* 201  
*planata* Edney (*Chrysis*)\* 449  
*planatum* Bischoff (*Hedychridium*)\* 201  
*planidorsa* Linsenmaier (*Neochrysis*)\* 516  
*planifrons* Buysson (*Hedychridium*)\* 201  
*Platycelia* Dahlbom 315



- platyops* (Bischoff) (*Chrysis*) 455  
*plaumanni* (Linsenmaier) (*Caenochrysis*)\* 304  
*plaumanni* (Linsenmaier) (*Exochrysis*)\* 503  
*pleskei* Semenov (*Chrysis*)\* 449  
*pleuralis* (Mocsáry) (*Spintharina*)\* 557  
*pleuretica* Mocsáry (*Chrysis*) 409  
*pleuridentata* (Bischoff) (*Chrysis*) 396  
*Pleurocera* Guérin 522  
*Pleurochrysis* Bohart\* 285, 523  
*Plexichrysis* Balthasar 553  
*plicatus* (Aaron) (*Philoctetes*)\* 256  
*pliginskii* (Semenov) (*Elampus*)\* 169  
*plumbea* Edney (*Chrysis*)\* 449  
*plurimacula* (Brullé) (*Chrysis*) 414  
*plusia* Mocsáry (*Chrysis*)\* 449  
*poecila* Mocsáry (*Chrysis*) 463  
*poecilochroa* Radoszkowski (*Chrysis*) 405  
*Poecilochroa* Dahlbom 315  
*poecilopus* (Mocsáry) (*Spintharina*)\* 557  
*poetarum* Semenov (*Chrysis*) 454  
*poetica* Semenov (*Chrysis*) 422  
*polinieri* (Guérin) (*Trichrysis*)\* 573  
*politum* Bohart (*Hedychridium*)\* 201  
*politus* (Buysson) (*Omalus*)\* 249  
*polychroma* (Mocsáry) (*Spintharina*)\* 557  
*polygoni* (Rohwer) (*Hedychrum*) 218  
*polyhymnia* Balthasar (*Chrysis*) 435  
*Polyodontus* Radoszkowski 548  
*polystigma* (Buysson) (*Chrysis*) 414  
*pomerantzovi* Radoszkowski (*Chrysis*)\* 450  
*pompella* Bohart (*Chrysis*)\* 450  
*popovi* Semenov (*Chrysis*)\* 249  
*popovi* (Semenov) (*Omalus*)\* 450  
*popovii* Eversmann (*Parnopes*)\* 586  
*popularis* (Edney) (*Praestochrysis*)\* 283, 534  
*porosanum* Linsenmaier (*Stilbum*) 568  
*porphyrea* (Mocsáry) (*Chrysura*) 493  
*porphyrophana* Mocsáry (*Chrysis*)\* 450  
*portentosa* (Radoszkowski) (*Chrysura*) 493  
*portmanni* Linsenmaier (*Chrysis*) 458  
*portugalia* Linsenmaier (*Chrysis*)\* 450  
*postica* (Brullé) (*Pleurochrysis*)\* 527  
*postpunctata* Bohart (*Spintharina*)\* 558  
*postscutellaris* Mocsáry (*Chrysis*)\* 450  
*posttboracicum* Linsenmaier (*Hedychridium*)\* 201  
*potanini* Radoszkowski (*Chrysis*)\* 450  
*potanini* (Semenov) (*Omalus*)\* 249  
*potentera* Linsenmaier (*Chrysis*) 455  
*praecipua* Linsenmaier (*Chrysis*)\* 450  
*praestans* (Förster) (*Pseudomalus*) 270  
*praestans* Buysson (*Chrysis*) 462  
*praestigiatrix* Balthasar (*Chrysis*) 477  
*Praestochrysis* Linsenmaier\* 528  
*praetoritorum* (Semenov) (*Philoctetes*)\* 257  
*praetexta* Buysson (*Chrysis*)\* 450  
*prasina* Cresson (*Chrysis*) 432  
*prasina* Klug (*Chrysis*) 390  
*praticola* Mocsáry (*Chrysis*) 444  
*preciosum* Trautmann (*Hedychridium*) 207  
*presidialis* Mocsáry (*Chrysis*) 475  
*pretoria* Edney (*Chrysis*) 472  
*pretoriae* Bohart (*Praestochrysis*)\* 534  
*priesneri* Zimmermann (*Chrysis*) 414  
*Primeuchroes* Linsenmaier\* 281, 535  
*primordialis* (Brues) (*Palaeochrum*)\* 15  
*principalis* Smith (*Chrysis*)\* 450  
*proba* Linsenmaier (*Chrysis*) 458  
*procera* (Zimmermann) (*Chrysura*) 492  
*procerula* Linsenmaier (*Chrysis*) 401  
*prochloropygum* Linsenmaier (*Hedychridium*) 205  
*Prochridium* Linsenmaier\* 159, 258  
*procne* Balthasar (*Chrysis*)\* 450  
*procuprata* Linsenmaier (*Chrysis*)\* 450  
*prodichroa* (Linsenmaier) (*Chrysura*) 491  
*prodita* Buysson (*Chrysis*)\* 451  
*prodives* Linsenmaier (*Chrysis*)\* 451  
*producta* (Brullé) (*Caenochrysis*) 301  
*productus* (Aaron) (*Elampus*) 171  
*productus* Dahlbom (*Elampus*) 171  
*profugax* Linsenmaier (*Chrysis*)\* 451  
*progressa* Linsenmaier (*Chrysis*) 458  
*prohybrida* (Linsenmaier) (*Chrysura*)\* 494  
*projecta* Edney (*Chrysis*) 399  
*projucundum* Linsenmaier (*Hedychridium*) 189  
*prolata* Bohart (*Chrysis*)\* 451  
*prolixa* Bohart (*Ipsiura*)\* 511  
*promerea* Linsenmaier (*Chrysis*)\* 451  
*Promesitius* Kieffer 125  
*prominea* Linsenmaier (*Chrysis*) 389  
*prominentula* Linsenmaier (*Chrysis*) 423  
*prominula* Dahlbom (*Chrysis*)\* 451  
*pronigrus* Linsenmaier (*Cleptes*)\* 62  
*propingua* Mocsáry (*Chrysis*)\* 451  
*propingua* Edney (*Chrysis*) 405  
*propinquata* Linsenmaier (*Chrysis*)\* 451  
*propodealis* Kimsey (*Cleptidea*)\* 70  
*propria* Aaron (*Chrysis*)\* 451  
*prorata* (Edney) (*Praestochrysis*)\* 534  
*prospinigera* (Linsenmaier) (*Exochrysis*)\* 503  
*Prospolinia* Linsenmaier 549  
*prosuccincta* Linsenmaier (*Chrysis*)\* 452  
*proteus* Balthasar (*Holopyga*) 230  
*proteus* (Smith) (*Chrysis*) 433  
*provancheri* Aaron (*Cleptes*) 59  
*provancheri* Schulz (*Chrysis*)\* 452  
*provenceana* Linsenmaier (*Chrysis*)\* 452  
*provinciale* Mocsáry (*Hedychrum*)\* 218  
*provincialis* Mocsáry (*Chrysis*) 418  
*proviridis* Linsenmaier (*Holopyga*) 229  
*proxima* Cameron (*Chrysis*) 425  
*pruinifrons* (Semenov) (*Hedychridium*)\* 201  
*pruinotum* (Semenov) (*Hedychridium*)\* 201  
*pruna* (Gribodo) (*Chrysura*)\* 494  
*przewalskii* (Radoszkowski) (*Chrysis*)\* 452  
*Psacas* Semenov 226  
*pseudanatolica* (Linsenmaier) (*Chrysura*) 491  
*pseudaptata* (Linsenmaier) (*Caenochrysis*) 304  
*Pseudepyris* Duce 82  
*Pseudhedychrum* Abeille 226  
*pseudignita* Linsenmaier (*Chrysis*) 421  
*pseudoanalis* Linsenmaier (*Chrysis*)\* 452  
*pseudobrevitarsis* Linsenmaier

- (*Chrysis*)\* 452  
*pseudocerastes* Linsenmaier (*Chrysis*) 395  
*Pseudochrysis* Semenov 292  
*pseudodichroa* (Linsenmaier) (*Chrysur*)\* 494  
*Pseudogonochrysis* Bischoff 315  
*pseudogribodoi* Linsenmaier (*Chrysis*) 398  
*Pseudohexachrysis* Bischoff 316  
*pseudoincisa* Balthasar (*Chrysis*)\* 452  
*pseudoincrassatum* Linsenmaier (*Hedychridium*)\* 202  
*Pseudolopyga* Krombein\* 160, 260  
*Pseudomalus* Ashmead\* 161, 262  
*pseudopyrrhina* Linsenmaier (*Chrysis*) 397  
*pseudorseum* Linsenmaier (*Hedychridium*)\* 202  
*pseudoscutellaris* Linsenmaier (*Chrysis*)\* 452  
*Pseudospinolia* Linsenmaier\* 282, 544  
*pseudosulcatus* Móczár (*Cleptes*)\* 62  
*Pseudotetrachrysis* Bischoff 315  
*pseudovata* Linsenmaier (*Holopyga*)\* 235  
*pittacina* Buysson (*Chrysis*)\* 452  
*puberula* (Spinola) (*Caenochrysis*)\* 304  
*pubescens* Smith (*Chrysis*)\* 452  
*puella* Buysson (*Chrysis*)\* 452  
*puertoricana* Kimsey (*Adelpe*)\* 86  
*puertoricensis* Huber (*Elampus*)\* 169  
*pulawskii* Linsenmaier (*Holopyga*)\* 235  
*pulawskii* (Linsenmaier) (*Spinolia*) 551  
*pulchella* Cameron (*Chrysis*) 383  
*pulchella* Spinola (*Chrysis*)\* 453  
*pulchella* (Trautmann) (*Brugmoia*) 296  
*pulchella* (Trautmann) (*Chrysur*) 486  
*pulchellum* (Mocsáry) (*Hedychridium*) 202  
*pulchellus* (Schenck) (*Elampus*) 170  
*pulcherrima* Cresson (*Chrysis*) 398  
*pulcherrima* Lepeletier (*Chrysis*)\* 453  
*pulcherrima* (Trautmann) (*Chrysis*) 468  
*pulchra* (Radoszkowski) (*Spinolia*) 552  
*pulchricollis* (Ducke) (*Elampus*)\* 169  
*pullatum* Tsuneki (*Hedychrum*) 220  
*pumila* (Klug) (*Chrysidea*)\* 314  
*pumilionis* (Linsenmaier) (*Trichrysis*)\* 573  
*pumiloides* Zimmermann (*Chrysidea*)\* 314  
*punctata* Christ (*Chrysis*)\* 453  
*punctaticeps* (Kieffer) (*Myrmecomimesis*)\* 128  
*punctatifrons* (Bischoff) (*Holophris*)\* 225  
*punctatissima* Dahlbom (*Holopyga*)\* 235  
*punctatissima* (Spinola) (*Neochrysis*) 515  
*punctatissimum* (Villers) (*Stilbum*) 567  
*punctatus* (Uchida) (*Pseudomalus*)\* 268  
*puncticollis* (Mocsáry) (*Omalus*) 247  
*punctigerum* Mocsáry (*Hedychrum*)\* 218  
*punctulatum* Mocsáry (*Hedychrum*)\* 218  
*punctulatus* (Dahlbom) (*Pseudomalus*)\* 266  
*punctulatus* (Mocsáry) (*Pseudomalus*) 268  
*punctum* French (*Hedychrum*)\* 219  
*punica* (Bischoff) (*Chrysis*) 419  
*pupilla* Semenov (*Chrysis*)\* 453  
*purpurascens* (Dahlbom) (*Hedychridium*)\* 202  
*purpurascens* (Mocsáry) (*Chrysur*) 492  
*purpurata* Fabricius (*Chrysis*)\* 453  
*purpuratus* Cresson (*Cleptes*)\* 62  
*purpuratus* (Provancher) (*Pseudomalus*)\* 268  
*purpurea* Smith (*Chrysis*)\* 454  
*purpureifrons* (Abeille) (*Chrysur*)\* 494  
*purpureus* (Móczár) (*Elampus*) 170  
*purpureus* (Smith) (*Holophris*)\* 225  
*purpuripyga* Edney (*Chrysis*) 423  
*purpuripyga* (Edney) (*Trichrysis*)\* 573  
*purpuriventris* Cresson (*Chrysis*)\* 454  
*purum* Kimsey (*Hedychridium*)\* 202  
*pushkiniana* Semenov (*Chrysis*)\* 454  
*pusilla* Mocsáry (*Chrysis*)\* 454  
*pusillus* (Fabricius) (*Pseudomalus*)\* 268  
*pusio* (Semenov) (*Hedychridium*) 189  
*pustulosa* (Abeille) (*Chrysur*) 495  
*putoni* Buysson (*Cleptes*)\* 62  
*putoni* (Buysson) (*Elampus*)\* 169  
*pygialis* Buysson (*Omalus*) 247  
*pygmaea* Buysson (*Holopyga*)\* 235  
*pygmaeus* (Schenck) (*Omalus*) 246  
*pylnovi* (Semenov) (*Philoctetes*)\* 257  
*Pyrra* Lepeletier and Serville 315  
*Pyrochloris* Klug 315  
*pyrocoelia* (Mocsáry) (*Chrysur*) 494  
*pyrogaster* (Brullé) (*Chrysur*)\* 494  
*pyrophana* Dahlbom (*Chrysis*)\* 454  
*Pyrosoma* Dahlbom 315  
*pyrosomus* (Förster) (*Elampus*)\* 169  
*pyrrha* Semenov (*Chrysis*)\* 454  
*pyrrhina* Dahlbom (*Chrysis*)\* 454  
*pyrrhogaster* (Dalla Torre) (*Chrysur*) 494  
*quadrata* (Shuckard) (*Brugmoia*)\* 296  
*quadridens* (Bischoff) (*Pleurochrysis*) 527  
*quadridens* Mocsáry (*Chrysis*) 455  
*quadrimaculata* (Bischoff) (*Chrysis*) 379  
*quadriramosa* (Mocsáry) (*Caenochrysis*)\* 304  
*quadrispina* Buysson (*Chrysis*)\* 455  
*quadrituberculata* (Cameron) (*Ceratochrysis*)\* 310  
*quaerita* Nurse (*Chrysis*)\* 455  
*quettaensis* Nurse (*Chrysis*) 405  
*quinquedens* Edney (*Allocoelia*)\* 276  
*quinquedentata* (Mocsáry) (*Trichrysis*) 574  
*rabaudi* Buysson (*Chrysis*)\* 455  
*raciborskii* Semenov (*Holopyga*)\* 235  
*radians* (Harris) (*Chrysur*)\* 495  
*radoszkowskii* (Gribodo) (*Primeuchroes*) 543  
*radoszkowskii* Radoszkowski (*Cleptes*)\* 63  
*radoszkowskyi* Buysson (*Hedychrum*)\* 219  
*ragusae* DeStephani (*Chrysis*)\* 455  
*ramburi* Dahlbom (*Chrysis*)\* 455  
*rani* Mocsáry (*Chrysis*)\* 455  
*rasile* Bohart (*Hedychridium*)\* 202  
*rasnitsyni* Evans (*Hypocleptes*)\* 15  
*rastellum* Brullé (*Chrysis*)\* 455  
*rebecca* (Morice) (*Chrysidea*) 314  
*rectianalis* Linsenmaier (*Chrysis*)\* 494

- 456  
*rectiangulatus* (Linsenmaier)  
 (*Primeuchroeus*) 543  
*rectilineata* Edney (*Chrysis*)\* 456  
*redikortzevi* (Semenov)  
 (*Hedychridium*) 194  
*reducta* Linsenmaier (*Holopyga*) 229  
*reducta* Maa and Yoshimoto (*Loboscelidia*)\* 148  
*refrigerata* Linsenmaier (*Chrysis*) 432  
*refulgens* Klug (*Chrysis*) 449  
*refulgens* (Spinola) (*Chrysura*)\* 495  
*regalis* Mocsáry (*Chrysis*)\* 456  
*regia* (Fabricius) (*Hedychrum*) 217  
*regina* Buysson (*Chrysis*)\* 456  
*regularita* Linsenmaier (*Neochrysis*)\*  
 516  
*reichei* Dahlbom (*Chrysis*) 391  
*reichei* (Spinola) (*Chrysis*) 433  
*Reidia* Krombein\* 78, 132  
*relegatus* (Mocsáry) (*Primeuchroeus*)\*  
 543  
*remissa* Mocsáry (*Chrysis*)\* 456  
*remota* Radoszkowski (*Chrysis*)\* 456  
*reparata* (Nurse) (*Pentachrysis*) 522  
*resecta* (Gribodo) (*Chrysura*) 494  
*respublicana* Mocsáry (*Holopyga*) 230  
*reticulata* (Mocsáry) (*Caenochrysis*)  
 304  
*reticulatum* Abeille (*Hedychridium*)\*  
 202  
*retracta* Linsenmaier (*Chrysis*)\* 456  
*retusus* (Semenov) (*Elampus*)\* 170  
*reversus* (Smith) (*Primeuchroeus*)\* 543  
*Rhadinoscelidia* Kimsey\* 143, 148  
*rhinata* Bohart (*Chrysis*)\* 456  
*rhodesiaca* Linsenmaier (*Chrysis*) 454  
*rhodesiaca* Mocsáry (*Chrysis*)\* 456  
*rhodesiacum* (Mocsáry)  
 (*Hedychridium*)\* 202  
*rhodesiana* (Linsenmaier) (*Chrysura*)  
 488  
*rhodia* (Mocsáry) (*Chrysura*)\* 495  
*rhodicipria* Linsenmaier (*Chrysis*)  
 475  
*rhodinum* Semenov and Nikol'skaya  
 (*Hedychridium*)\* 202  
*rhodochalcea* Buysson (*Chrysis*)\* 456  
*rhodochlorum* (Semenov and  
 Nikol'skaya) (*Hedychridium*)\* 202  
*rhodocyprum* Linsenmaier  
 (*Hedychrum*) 211  
*rhodojanthinum* Enslein  
 (*Hedychridium*)\* 202  
*rhodopis* Zimmermann (*Chrysidea*)\*  
 314  
*ribbei* (Mocsáry) (*Praestochrysis*)\* 534  
*richardsi* (Linsenmaier)  
 (*Caenochrysis*) 304  
*rieki* (Krombein) (*Atoposega*)\* 99  
*riessi* Linsenmaier (*Chrysis*) 463  
*riessi* (Linsenmaier) (*Primeuchroeus*)  
 541  
*rigiana* Linsenmaier (*Chrysis*) 458  
*rimata* Buysson (*Chrysis*) 451  
*rinconensis* Mocsáry (*Chrysis*) 452  
*ritsemae* (Mocsáry) (*Caenochrysis*) 304  
*rivalis* Bohart (*Chrysis*)\* 457  
*robertiana* (Cameron) (*Chrysis*) 430  
*robillardi* Saussure (*Chrysis*)\* 457  
*roborovskii* Semenov (*Hedychridium*)\*  
 203  
*robusta* (Bischoff) (*Chrysis*) 446  
*robusta* Kimsey (*Adelphe*)\* 86  
*robusta* Linsenmaier (*Chrysis*) 424  
*robusta* (Mocsáry) (*Brugmoia*)\* 296  
*robustior* (Ducke) (*Cleptidea*) 69  
*robustum* Kimsey (*Hedychridium*)\*  
 203  
*rogenhoferi* (Mocsáry) (*Spinolia*)\* 552  
*rogneda* Semenov (*Chrysis*) 422  
*robweri* Cockerell (*Chrysis*) 15  
*robweriana* Bohart (*Chrysis*)\* 457  
*Robweria* Fouts\* 81, 134  
*rosaceum* (Semenov and Nikol'skaya)  
 (*Hedychridium*) 202  
*rosae* (Dahlbom) (*Hedychridium*) 203  
*rosenhaueri* Förster (*Chrysis*) 461  
*roseni* Mocsáry (*Chrysis*) 409  
*roseum* (Rossi) (*Hedychridium*)\* 203  
*rosina* Balthasar (*Chrysis*) 424  
*rossi* Linsenmaier (*Trichrysis*) 574  
*rostrata* (Edney) (*Chrysis*) 442  
*rostrata* Edney (*Chrysis*) 442  
*rostratorana* (Linsenmaier) (*Chrysis*)  
 380  
*rotundum* Nurse (*Hedychridium*)\* 203  
*rotundus* Huber and Pengelley  
 (*Elampus*) 172  
*rubescens* Buysson (*Chrysis*) 390  
*rubescens* Edney (*Chrysis*) 472  
*rubescens* (Edney) (*Spintharina*) 557  
*rubescens* Radoszkowski (*Chrysis*) 382  
*rubeum* Bohart (*Xerochrum*)\* 272  
*rubicunda* Semenov (*Chrysis*) 453  
*rubinanalís* Linsenmaier (*Chrysis*)\*  
 457  
*ruborum* Linsenmaier (*Hedychridium*)  
 199  
*rubrafeminae* Linsenmaier (*Chrysis*)  
 469  
*rubricata* Mocsáry (*Chrysis*)\* 457  
*rubricollis* Buysson (*Chrysis*)\* 457  
*rubrifasciata* Tsuneki (*Chrysis*) 413  
*rubrifemur* (Riek) (*Myrmecomimesis*)\*  
 128  
*rubripyga* Tsuneki (*Chrysis*)\* 457  
*rubrocincta* Buysson (*Chrysis*) 450  
*rubrocoerulea* Linsenmaier (*Chrysis*)\*  
 457  
*rubropicta* Buysson (*Chrysis*) 427  
*rubroviolacea* Mocsáry (*Chrysis*) 427  
*rubrum* Edney (*Hedychrum*)\* 219  
*rubrum* Linsenmaier  
 (*Hedychridium*)\* 203  
*ruddii* Shuckard (*Chrysis*)\* 457  
*rudis* (Buysson) (*Chrysura*) 495  
*rudis* Kimsey (*Holopyga*)\* 235  
*rudowi* (Buysson) (*Pseudomalus*) 266  
*rueppelli* Buysson (*Chrysis*)\* 457  
*rufa* Fouts (*Loboscelidia*)\* 148  
*rufescens* (Cameron) (*Loboscelidia*)  
 147  
*rufescens* (Geoffroy) (*Cleptes*) 64  
*rufescens* Westwood (*Loboscelidia*)\*  
 148  
*rufifemur* Kimsey (*Cleptes*)\* 63  
*rufigaster* Kimsey (*Cleptes*)\* 63  
*rufilateralis* Kimsey (*Amisega*)\* 93  
*rufinistisch* Trautmann  
 (*Hedychridium*) 187  
*rufipes* Buysson (*Hedychrum*)\* 219  
*rufitarsis* Brullé (*Chrysis*)\* 457  
*rufitarsis* (Tournier) (*Elampus*)\* 170  
*rufitegulata* (Linsenmaier)  
 (*Caenochrysis*)\* 304  
*rufithorax* Krombein (*Imasega*)\* 113  
*rufiventris* (Dahlbom) (*Chrysura*)\*  
 495  
*rufum* (Panzer) (*Hedychridium*) 203  
*rugosa* (Buysson) (*Spinolia*)\* 552  
*rugosa* Rohwer (*Chrysis*) 457  
*rugosa* (Smith) (*Holopyga*)\* 235  
*rugosinotus* (Riek) (*Myrmecomimesis*)\*  
 128  
*rugulae* Kimsey (*Brugmoia*)\* 296  
*rugulosa* Abeille (*Chrysis*) 457  
*rugulosa* (Mocsáry) (*Brugmoia*) 296  
*rugulosum* Linsenmaier  
 (*Hedychridium*) 194



- rugulosus* Linsenmaier (*Cleptes*)\* 63  
*rusalka* (Semenov) (*Brugmoia*)\* 296  
*rusica* Linsenmaier (*Chrysis*)\* 458  
*ruthenus* (Semenov) (*Pseudomalus*)\* 269  
*rutilans* Dahlbom (*Hedychrum*)\* 219  
*rutilans* Dahlbom (*Chrysis*) 397  
*rutilans* Olivier (*Chrysis*)\* 458  
*rutilata* Buysson (*Chrysis*)\* 458  
*rutiliventris* Abeille (*Chrysis*)\* 458  
  
*sabulosa* Radoszkowski (*Chrysis*)\* 458  
*sacrata* Buysson (*Chrysis*)\* 458  
*saegerae* Bohart (*Praestochrysis*)\* 534  
*saginata* Linsenmaier (*Chrysis*)\* 459  
*sagmatis* Bohart (*Chrysura*)\* 495  
*sakalava* (Saussure) (*Chrysis*) 414  
*saladoensis* (Linsenmaier) (*Caenochrysis*)\* 304  
*salambo* Balthasar (*Chrysis*) 413  
*salamensis* Buysson (*Chrysis*)\* 459  
*salisburyana* Mocsáry (*Chrysis*) 404  
*salome* Balthasar (*Chrysis*) 407  
*saltana* Bohart (*Chrysis*)\* 459  
*saltasega* Krombein\* 79, 81, 136  
*saltator* Krombein (*Mabinda*)\* 123  
*samariae* (Zimmermann) (*Chrysis*) 440  
*samarkandensis* (Bischoff) (*Chrysis*) 396  
*samia* (Bischoff) (*Chrysis*) 417  
*sampanoi* (Ducke) (*Pleurochrysis*) 527  
*sandaracata* Bingham (*Chrysis*)\* 459  
*santschii* Linsenmaier (*Chrysis*)\* 459  
*santschii* Trautmann (*Hedychridium*) 196  
*sanzi* Gogorza (*Elampus*)\* 170  
*saobime* (Tsuneki) (*Trichrysis*) 574  
*saphirina* Buysson (*Holopyga*)\* 235  
*sapphirina* Semenov (*Chrysis*) 422  
*sapphirinum* (Semenov) (*Hedychridium*)\* 203  
*sapphirinum* Semenov (*Hedychrum*)\* 219  
*sapphirus* Semenov (*Chrysis*)\* 459  
*sappho* Semenov (*Chrysis*) 454  
*sara* (Nurse) (*Allochrysis*) 288  
*sarafschana* Mocsáry (*Chrysis*) 473  
*sarakensis* Radoszkowski (*Chrysis*) 428  
*sarawakensis* Kimsey (*Loboscelidia*)\* 148  
  
*sarawakensis* (Mocsáry) (*Praestochrysis*)\* 534  
*sardarica* Radoszkowski (*Chrysis*)\* 459  
*sardiniense* Linsenmaier (*Hedychridium*) 204  
*sardiniensis* (Linsenmaier) (*Chrysura*) 490  
*sardoa* Invrea (*Holopyga*) 229  
*sareptana* (Trautmann) (*Chrysis*) 428  
*sareptanus* (Mocsáry) (*Philoctetes*)\* 257  
*sarta* Edney (*Chrysis*) 429  
*satoi* Tosawa (*Cleptes*)\* 63  
*satrapes* Mocsáry (*Chrysis*)\* 459  
*satunini* Semenov (*Chrysis*) 437  
*satunini* Semenov (*Hedychridium*)\* 203  
*saturatus* (Semenov) (*Pseudomalus*)\* 269  
*saudiarabica* (Linsenmaier) (*Pentachrysis*) 522  
*saussurei* Chevrier (*Chrysis*) 415  
*saussurei* (Mocsáry) (*Caenochrysis*)\* 304  
*saussurei* Mocsáry (*Cleptes*)\* 63  
*sauteri* (Mocsáry) (*Omalus*) 247  
*sauteri* (Mocsáry) (*Trichrysis*) 574  
*sayi* Bohart (*Caenochrysis*)\* 305  
*scabiosa* Buysson (*Chrysis*) 447  
*Scelidoloba* Maa and Yoshimoto 144  
*schalfeewi* Semenov (*Chrysis*)\* 459  
*schencki* Linsenmaier (*Chrysis*) 421  
*schenkiana* Linsenmaier (*Chrysis*) 421  
*schenkiana* Mocsáry (*Chrysis*) 462  
*schenklingi* Mocsáry (*Chrysis*) 425  
*schiodtei* Dahlbom (*Chrysis*)\* 460  
*schischmai* Mader (*Stilbum*) 567  
*schlaeflei* (Linsenmaier) (*Ipsiura*) 512  
*schlettereri* Mocsáry (*Chrysis*)\* 460  
*schmidtii* Linsenmaier (*Cleptes*)\* 63  
*schmidtii* (Linsenmaier) (*Spinolia*)\* 552  
*schmidtianus* (Semenov) (*Elampus*)\* 170  
*schmiedeknechti* (Mocsáry) (*Isadelphina*)\* 580  
*schmiedeknechti* (Trautmann) (*Pseudospinolia*) 548  
*schmiedeknechti* (Mocsáry) (*Pseudomalus*) 269  
*schmiedeknechti* Trautmann (*Chrysis*) 381  
  
*schoenberri* Dahlbom (*Chrysis*)\* 460  
*schousboei* Dahlbom (*Chrysis*)\* 460  
*schrottkei* (Brethes) (*Caenochrysis*) 301  
*schultzei* (Mocsáry) (*Philoctetes*) 257  
*schultzei* Mocsáry (*Chrysis*) 425  
*schultzei* (Mocsáry) (*Chrysura*) 495  
*schulzi* Buysson (*Chrysis*)\* 460  
*schusteri* Bohart (*Chrysis*)\* 460  
*schwarzi* Linsenmaier (*Chrysis*) 399  
*scintilla* Semenov (*Hedychridium*)\* 204  
*scintillans* Valkeila (*Chrysis*) 437  
*scintillula* Morice (*Chrysis*)\* 460  
*scioensis* (Gribodo) (*Trichrysis*)\* 573  
*scita* (Mocsáry) (*Chrysura*)\* 496  
*scitula* Cresson (*Chrysis*)\* 460  
*scrobiculata* Mocsáry (*Chrysis*) 410  
*scrobiculatum* Edney (*Hedychrum*)\* 219  
*scrutator* (Semenov and Nikol'skaya) (*Philoctetes*)\* 257  
*sculpticollis* (Abeille) (*Philoctetes*)\* 257  
*sculptidiscalis* Linsenmaier (*Chrysis*)\* 460  
*sculptiventre* Buysson (*Hedychrum*)\* 220  
*sculpturata* Mocsáry (*Chrysis*) 434  
*sculpturatissima* (Linsenmaier) (*Pseudospinolia*) 547  
*sculpturatissimum* Linsenmaier (*Hedychridium*) 200  
*sculpturatum* (Abeille) (*Hedychridium*)\* 204  
*scutata* Mocsáry (*Chrysis*)\* 460  
*scutellare* Linsenmaier (*Hedychrum*)\* 220  
*scutellare* Tournier (*Hedychridium*)\* 204  
*scutellaris* (Bischoff) (*Holophris*) 225  
*scutellaris* (Cameron) (*Cleptidea*)\* 70  
*scutellaris* Fabricius (*Chrysis*)\* 461  
*scutellaris* Mocsáry (*Cleptes*)\* 63  
*scutellaris* Panzer (*Elampus*)\* 170  
*scutellaris* Zimmermann (*Holopyga*)\* 235  
*scutellata* Fouts (*Loboscelidia*)\* 148  
*scutellata* Mocsáry (*Chrysis*) 430  
*scyphiphora* (Linsenmaier) (*Caenochrysis*) 304  
*secernenda* (Mocsáry) (*Trichrysis*)\* 573  
*secutor* Bohart (*Argochrysis*)\* 292



- seducta* (Smith) (*Trichbrysis*)\* 573  
*sefrensis* Buysson (*Chrysis*)\* 461  
*segmentata* Dahlbom (*Chrysis*) 461  
*segusiana* (Giraud) (*Spinolia*) 552  
*sebestedi* Dahlbom (*Chrysis*) 424  
*seidensteuckeri* Linsenmaier (*Cleptes*)\* 63  
*sejuncta* Mocsáry (*Chrysis*) 443  
*selectum* Nurse (*Hedychridium*)\* 204  
*selenia* (Costa) (*Caenochrysis*) 303  
*Selenochrysis* Haupt 480  
*semenovi* Kimsey (*Hedychridium*)\* 204  
*semenovi* Kuznetsov-Ugamskii (*Cleptes*)\* 63  
*semenovi* Mocsáry (*Chrysis*) 440  
*semenovi* Radoszkowski (*Chrysis*)\* 461  
*semiatus* Linsenmaier (*Cleptes*)\* 63  
*semiaurata* Brullé (*Chrysis*) 386  
*semiauratus* (Linnaeus) (*Cleptes*)\* 63  
*semicincta* Lepeletier (*Chrysis*)\* 461  
*semicircularis* (Aaron) (*Pseudomalus*) 268  
*semicuprea* (Viereck) (*Pseudospinolia*) 548  
*semicupreus* (Linsenmaier) (*Pseudomalus*) 269  
*semicyaneum* Mocsáry (*Hedychrum*)\* 220  
*semicyaneus* Tournier (*Cleptes*)\* 64  
*semiflava* Kimsey (*Amisega*)\* 93  
*semifumata* (Bischoff) (*Chrysis*)\* 461  
*semiglabus* (Riek) (*Myrmecommisus*)\* 128  
*semihyalina* (Bischoff) (*Chrysis*)\* 461  
*semiignita* Abeille (*Holopyga*) 235  
*semiignita* Marquet (*Holopyga*)\* 235  
*semiluteum* Linsenmaier (*Hedychridium*)\* 204  
*seminigra* (Walker) (*Pentachrysis*)\* 522  
*seminudus* (Aaron) (*Philotetes*)\* 257  
*semipurpureum* Semenov (*Hedychrum*) 216  
*semirufum* (Cockerell) (*Hedychridium*)\* 204  
*semirufum* (Semenov and Nikol'skaya) (*Hedychridium*) 204  
*semiviolacea* Mocsáry (*Chrysis*)\* 461  
*semiviolaceum* Mocsáry (*Hedychrum*) 217  
*semiviolaceus* Semenov (*Parnopes*) 586  
*semiviridana* Linsenmaier (*Chrysis*) 461  
*senegalae* Bohart (*Spintharina*)\* 558  
*senegalana* Bohart (*Chrysis*)\* 461  
*senegalense* Kimsey (*Hedychridium*)\* 204  
*senegalensis* Kimsey (*Elampus*)\* 170  
*senegalensis* Mocsáry (*Chrysis*)\* 462  
*senescens* Semenov (*Chrysis*) 453  
*seoulensis* Tsuneki (*Cleptes*)\* 64  
*separanda* (Radoszkowski) (*Chrysura*) 497  
*separata* (Trautmann) (*Chrysis*)\* 462  
*septemdentata* (Bischoff) (*Chrysis*) 411  
*septidens* Bohart (*Praestochrysis*)\* 534  
*serena* Radoszkowski (*Chrysis*) 454  
*Serendibula* Krombein\* 79, 80, 138  
*sericalineata* (Linsenmaier) (*Caenochrysis*)\* 305  
*sericifrons* (Semenov) (*Hedychridium*)\* 204  
*serpentula* Semenov (*Chrysis*)\* 462  
*serrata* Taylor (*Chrysis*)\* 462  
*serrulata* (Edney) (*Stilbichrysis*)\* 564  
*sertavulensis* Linsenmaier (*Chrysis*) 458  
*serva* Buysson (*Chrysis*)\* 462  
*servillei* Brullé (*Chrysis*) 443  
*severa* Mocsáry (*Chrysis*)\* 462  
*severtzovi* Semenov (*Hedychrum*)\* 220  
*sevillanum* Linsenmaier (*Hedychridium*)\* 204  
*sexdentata* Block (*Chrysis*) 475  
*sexdentata* Christ (*Chrysis*) 475  
*sexdentata* Fabricius (*Chrysis*) 410  
*sexdentata* (Guérin) (*Chrysis*) 466  
*sexdentatum* Buysson (*Hedychridium*)\* 204  
*seyrigi* Zimmermann (*Chrysis*) 441  
*seyrigi* Zimmermann (*Hedychridium*)\* 205  
*shanghaiensis* (Smith) (*Praestochrysis*)\* 534  
*shestakovi* (Semenov) (*Philotetes*) 255  
*shestakovi* Semenov (*Spinolia*) 551  
*shiratiense* Mocsáry (*Hedychrum*) 215  
*shokalskii* (Semenov) (*Philotetes*)\* 257  
*shoyozana* Tsuneki (*Chrysis*)\* 462  
*siamensis* (Bischoff) (*Primeuchroeus*)\* 543  
*sibirica* Semenov (*Holopyga*)\* 235  
*sibylla* Mocsáry (*Chrysis*) 462  
*sicheli* Chevrier (*Holopyga*) 231  
*siliciaca* Linsenmaier (*Chrysis*) 454  
*sickmanni* Mocsáry (*Chrysis*) 473  
*sicula* Abeille (*Chrysis*) 424  
*siculum* Tournier (*Stilbum*) 567  
*sidus* (Semenov) (*Elampus*)\* 170  
*sierrae* Bohart (*Ceratochrysis*)\* 310  
*sikkimensis* Mocsáry (*Chrysis*)\* 462  
*sillensis* Linsenmaier (*Chrysis*) 475  
*silvanus* Kimsey (*Exochrysis*)\* 503  
*silvestrii* (Ducke) (*Caenochrysis*)\* 305  
*similaris* (Tournier) (*Chrysura*) 490  
*simile* Mocsáry (*Hedychrum*)\* 220  
*similis* Kimsey (*Amisega*)\* 93  
*similis* Lepeletier (*Chrysis*) 475  
*similis* Mocsáry (*Holopyga*) 229  
*similis* (Mocsáry) (*Pseudomalus*)\* 269  
*similitudina* Linsenmaier (*Chrysis*) 453  
*simillima* (Bischoff) (*Chrysis*) 478  
*simillima* (Gribodo) (*Chrysis*) 393  
*simplex* (Dahlbom) (*Chrysura*)\* 496  
*simplicornis* (Buysson) (*Chrysura*)\* 496  
*simplifacies* Kimsey (*Anadelphe*)\* 97  
*simplifacies* (Linsenmaier) (*Chrysis*) 464  
*simponica* Linsenmaier (*Chrysis*)\* 462  
*simulacra* (Linsenmaier) (*Chrysura*)\* 496  
*simulans* Kimsey (*Atoposega*)\* 99  
*simulans* Mocsáry (*Chrysis*)\* 463  
*simulator* Kimsey (*Pleurochrysis*)\* 527  
*simulatrix* Radoszkowski (*Chrysis*) 436  
*simuldichroa* (Linsenmaier) (*Chrysura*) 492  
*simulpriesneri* Linsenmaier (*Chrysis*)\* 463  
*sinaica* Walker (*Chrysis*)\* 463  
*sinaitica* Mocsáry (*Chrysis*) 463  
*sinensis* Buysson (*Chrysis*)\* 463  
*sinensis* Kimsey (*Loboscelidia*)\* 148  
*sinensis* Smith (*Parnopes*) 586  
*sinensis* (Tsuneki) (*Pseudomalus*)\* 269  
*singalensis* (Mocsáry) (*Trichbrysis*) 573  
*singula* Radoszkowski (*Chrysis*) 416  
*singularis* (Spinola) (*Brugmoia*)\* 296  
*sinicum* Semenov (*Hedychrum*)\* 220  
*sinuata* Dahlbom (*Chrysis*) 463  
*sinuato caudata* (Bischoff) (*Chrysura*) 496

- sinuatum* Edney (*Hedychridium*)\* 205  
*sinuosa* Dahlbom (*Chrysis*)\* 463  
*sinuosiventris* (Abeille) (*Chrysura*)\* 496  
*sinuosus* (Say) (*Pseudomalus*) 265  
*siren* Semenov (*Chrysis*)\* 463  
*siva* Mocsáry (*Chrysis*) 445  
*sjoestedti* (Cameron) (*Chrysis*) 435  
*sjoestedti* Hammer (*Cleptes*)\* 64  
*skorikovi* Semenov (*Chrysis*)\* 463  
*slava* (Semenov) (*Allochrysis*)\* 288  
*slovaca* Hoffer (*Chrysis*) 392  
*smaragdicolor* Semenov (*Holopyga*)\* 235  
*smaragdicolor* (Balthasar) (*Chrysura*) 493  
*smaragdicolor* (Walker) (*Chrysura*)\* 496  
*smaragdina* Smith (*Parnopes*) 585  
*smaragdina* (Tournier) (*Holopyga*) 231  
*smaragdina* (Trautmann) (*Brugmoia*) 296  
*smaragdina* (Trautmann) (*Chrysura*) 491  
*smaragdinum* (Semenov) (*Hedychridium*)\* 205  
*smaragdula* (Trautmann) (*Chrysis*) 407  
*smaragdula* Fabricius (*Chrysis*)\* 463  
*smaragdula* Hellen (*Chrysis*) 413  
*smaragdula* (Lepeletier and Serville) (*Chrysis*) 466  
*smaragdulus* (Semenov) (*Chrysura*) 490  
*smaragdulus* (Semenov) (*Philoctetes*)\* 257  
*smidti* Dahlbom (*Chrysis*) 425  
*smithii* Gribodo (*Chrysis*) 393  
*smyrnensis* (Mocsáry) (*Chrysura*)\* 496  
*snoui* Viereck (*Chrysis*)\* 464  
*sobrina* (Linsenmaier) (*Ipsiura*) 509  
*socia* (Dahlbom) (*Chrysura*) 488  
*socius* (Mocsáry) (*Pseudomalus*) 268  
*sodalis* (Mocsáry) (*Chrysura*) 497  
*sogdiana* (Semenov) (*Chrysura*)\* 496  
*sogdianus* (Semenov) (*Omalus*)\* 249  
*sokotranum* Linsenmaier (*Stilbum*) 568  
*solandii* (Courtyiller) (*Hedychridium*) 193  
*soleana* (Cameron) (*Chrysis*)\* 464  
*solida* Haupt (*Chrysis*) 384  
*solierellae* Bohart and Brumley (*Hedychridium*)\* 205  
*sollicita* Mocsáry (*Chrysis*)\* 464  
*soloriens* (Semenov) (*Hedychridium*)\* 205  
*solox* Semenov (*Chrysis*) 437  
*solskii* (Radoszkowski) (*Holopyga*)\* 235  
*solsky* Radoszkowski (*Hedychrum*)\* 220  
*soluta* Dahlbom (*Chrysis*) 454  
*somaliae* Bohart (*Chrysis*)\* 464  
*somalina* Mocsáry (*Chrysis*)\* 464  
*somalina* (Zimmermann) (*Isadelphina*)\* 581  
*sonorensis* (Cameron) (*Chrysura*)\* 496  
*sorianum* Linsenmaier (*Hedychridium*) 203  
*soror* Dahlbom (*Chrysis*)\* 464  
*soror* Mocsáry (*Cleptes*) 58  
*soror* (Mocsáry) (*Elampus*)\* 170  
*spaceki* Hoffer (*Hedychridium*) 203  
*sparsapunctulatum* Linsenmaier (*Hedychridium*) 189  
*sparsepunctata* Buysson (*Chrysis*) 468  
*spartana* Linsenmaier (*Holopyga*) 234  
*spatium* Linsenmaier (*Hedychridium*) 190  
*speciosa* Radoszkowski (*Chrysis*)\* 464  
*speciosissima* Buysson (*Holopyga*)\* 235  
*speciosum* Ghiliani (*Stilbum*) 567  
*speciosus* Aaron (*Cleptes*)\* 64  
*spectabilis* (Mocsáry) (*Praestochrysis*)\* 534  
*spectrum* (Wickwar) (*Trichrysis*) 572  
*specularis* (Semenov) (*Omalus*) 248  
*speculata* Buysson (*Chrysis*)\* 464  
*speculifer* (Semenov) (*Philoctetes*)\* 257  
*speculifera* (Bischoff) (*Chrysis*) 451  
*speculum* (Say) (*Pseudomalus*)\* 269  
*spbinx* (Semenov) (*Spinolia*) 282, 552  
*spiculella* Bohart (*Ipsiura*)\* 511  
*spilota* Linsenmaier (*Chrysis*) 416  
*spiloventre* French (*Hedychrum*)\* 220  
*spina* (Brullé) (*Praestochrysis*)\* 534  
*spiniollis* Mocsáry (*Chrysis*) 447  
*spinidens* (Radoszkowski) (*Chrysis*)\* 464  
*spinifemoris* (Móczár) (*Elampus*)\* 171  
*spinifera* Abeille (*Chrysis*) 453  
*spinigera* (Spinola) (*Exochrysis*)\* 503  
*spinigerum* Mocsáry (*Hedychrum*)\* 220  
*spinipes* (Mocsáry) (*Elampus*)\* 171  
*spinolae* (Montrouzier) (*Stilbum*) 567  
*Spinolia* Schulz 549  
*Spinolia* Dahlbom\* 548  
*spinosus* (Bischoff) (*Elampus*) 167  
*spinosus* Provancher (*Elampus*) 172  
*Spintharichrysis* Linsenmaier 553  
*Spintharina* Semenov\* 283, 553  
*Spintharis* Klug 315  
*Spintharosoma* Zimmermann\* 282, 559  
*spinula* Bohart (*Praestochrysis*)\* 535  
*spinum* Blanchard (*Hedychrum*)\* 220  
*spinus* (Lepeletier) (*Elampus*)\* 171  
*splendens* (Buysson) (*Philoctetes*) 256  
*splendens* Chevriér (*Holopyga*) 231  
*splendens* Dahlbom (*Chrysis*)\* 465  
*splendens* (Fabricius) (*Cleptes*) 64  
*splendens* (Trautmann) (*Chrysis*) 401  
*splendida* Schenck (*Holopyga*) 228  
*splendidula* Rossi (*Chrysis*)\* 465  
*splendidulum* (Dahlbom) (*Hedychrum*) 212  
*splendidum* (Fabricius) (*Stilbum*) 567  
*splendidus* (Fabricius) (*Cleptes*) 64  
*stackelbergi* (Semenov) (*Philoctetes*)\* 257  
*stangei* Bohart (*Chrysis*)\* 465  
*stanleyana* Schletterer (*Chrysis*)\* 465  
*stantoni* Ashmead (*Hedychrum*)\* 220  
*stchourovskyi* (Radoszkowski) (*Spinolia*)\* 552  
*stella* (Semenov and Nikol'skaya) (*Omalus*)\* 249  
*stenodera* Mocsáry (*Chrysis*)\* 465  
*stenodyneri* Krombein (*Chrysis*) 384  
*stenomorpha* Mocsáry (*Chrysis*)\* 465  
*stenops* (Mocsáry) (*Ipsiura*) 511  
*stepaneki* Balthasar (*Chrysis*)\* 465  
*stevensoni* Bohart (*Chrysis*)\* 465  
*stevensoni* Edney (*Hedychrum*)\* 220  
*stigmaticornis* Linsenmaier (*Chrysis*)\* 465  
*stilbiceps* (Bischoff) (*Chrysis*) 442  
*Stilbichrysis* Bischoff\* 282, 561  
*stilboides* Spinola (*Chrysis*)\* 466  
*stilboides* Walker (*Hedychrum*) 212  
*Stilbum* Spinola\* 282, 564  
*stoekherti* Linsenmaier (*Hedychridium*)\* 205

- stoudera* Jurine (*Chrysis*) 413  
*strangulata* Gogorza (*Chrysis*) 458  
*strauchi* Semenov (*Chrysis*)\* 466  
*striafoveata* Linsenmaier (*Neochrysis*) 514  
*striata* Kimsey (*Amisega*)\* 93  
*striata* Mocsáry (*Chrysis*) 381  
*striatella* (Norton) (*Caenochrysis*) 302  
*striatidorsa* (Linsenmaier) (*Caenochrysis*)\* 305  
*striatifacialis* Linsenmaier (*Chrysis*)\* 466  
*striatula* Bohart (*Chrysis*)\* 466  
*striatum* Mocsáry (*Hedychrum*)\* 220  
*striatus* (Edney) (*Holophris*)\* 225  
*striatus* (Riek) (*Myrmecomimesis*)\* 128  
*studer* Imhof and Labram (*Chrysis*) 412  
*styx* (Trautmann) (*Chrysis*) 415  
*styx* (Trautmann) (*Omalus*) 247  
*suave* (Tournier) (*Hedychridium*) 203  
*suavis* Christ (*Chrysis*)\* 466  
*subaequalis* Linsenmaier (*Chrysis*) 416  
*subabneum* Linsenmaier (*Hedychridium*) 196  
*subanalis* Linsenmaier (*Chrysis*)\* 466  
*subaurata* Radoszkowski (*Chrysis*)\* 466  
*subauratum* (Mocsáry) (*Hedychridium*)\* 205  
*subauratus* (Mocsáry) (*Philoctetes*)\* 257  
*subaurotecta* Linsenmaier (*Chrysis*)\* 466  
*subcaerulea* Radoszkowski (*Chrysis*)\* 467  
*subcalens* Linsenmaier (*Stilbum*) 567  
*subcalens* Mader (*Stilbum*) 567  
*subcoeruleans* Buysson (*Chrysis*) 420  
*subcoriacea* Linsenmaier (*Chrysis*) 434  
*subdistincta* Linsenmaier (*Chrysis*)\* 467  
*subfasciata* Buysson (*Chrysis*)\* 467  
*subfoveolata* Brullé (*Chrysis*)\* 467  
*subgermari* Linsenmaier (*Chrysis*) 414  
*subincisa* Linsenmaier (*Chrysis*)\* 467  
*subintegra* Edney (*Chrysis*)\* 467  
*sublongula* Linsenmaier (*Chrysis*) 434  
*submontana* Rohwer (*Chrysis*) 452  
*subopacus* (Semenov and Nikol'skaya) (*Pseudomalus*)\* 269  
*subordinata* (Buysson) (*Chrysis*)\* 467  
*subparvulum* Linsenmaier (*Hedychrum*) 219  
*subroseum* Linsenmaier (*Hedychridium*)\* 205  
*subscutulum* Mader (*Stilbum*) 567  
*subsinuata* Marquet (*Chrysis*)\* 467  
*subtilis* (Edney) (*Elampus*)\* 171  
*subtilis* (Mocsáry) (*Haba*)\* 178  
*subtilissimum* Edney (*Hedychridium*)\* 205  
*subtruncata* (Mocsáry) (*Ipsiura*) 510  
*subviridis* Cresson (*Chrysis*) 424  
*succincta* Linnaeus (*Chrysis*)\* 467  
*succinctula* Dahlbom (*Chrysis*) 467  
*sudai* (Tsuneki) (*Trichrysis*)\* 573  
*sudeticum* Spacek (*Hedychridium*) 203  
*sugdeni* Bohart (*Spintharina*)\* 558  
*sulcata* (Dahlbom) (*Chrysura*)\* 496  
*sulcatum* (Mocsáry) (*Hedychridium*)\* 205  
*sulcianalis* (Linsenmaier) (*Spintharina*)\* 558  
*sulcifera* (Bischoff) (*Chrysis*) 383  
*sulcifoveolata* (Bischoff) (*Chrysis*) 462  
*sulcipleuralis* (Linsenmaier) (*Pleurochrysis*)\* 527  
*sumbawana* (Mocsáry) (*Trichrysis*) 573  
*sumptuosa* (Gribodo) (*Chrysis*) 445  
*sumptuosa* Smith (*Chrysis*)\* 468  
*superba* Cresson (*Chrysis*)\* 468  
*superba* Tournier (*Chrysis*) 390  
*superba* Radoszkowski (*Chrysis*) 402  
*superbus* (Abeille) (*Elampus*) 167  
*superleuceila* (Linsenmaier) (*Ipsiura*) 511  
*sur* Kimsey (*Pleurochrysis*)\* 527  
*surinamensis* (Linsenmaier) (*Ipsiura*)\* 511  
*susterai* Balthasar (*Chrysis*) 383  
*susterai* Balthasar (*Hedychridium*)\* 205  
*suturalis* (Mocsáry) (*Exallopyga*) 174  
*suzukii* (Tsuneki) (*Philoctetes*) 255  
*svetlana* Semenov (*Chrysis*) 459  
*sweirstrai* Edney (*Chrysis*)\* 468  
*sybarita* Förster (*Chrysis*) 415  
*sybaritoides* Linsenmaier (*Chrysis*)\* 469  
*sycophanta* Mocsáry (*Chrysis*) 451  
*syrdarica* Mocsáry (*Chrysis*)\* 469  
*syriaca* Guérin (*Chrysis*)\* 469  
*syriacus* Buysson (*Cleptes*)\* 64  
*syriacus* (Buysson) (*Philoctetes*)\* 258  
*syriensis* Linsenmaier (*Chrysis*) 401  
*syrix* Tsuneki (*Chrysis*)\* 469  
*szaboi* Mocsáry (*Hedychrum*) 212  
*szalayana* Mocsáry (*Chrysis*) 383  
*sziliana* Linsenmaier (*Chrysis*) 453  
*sznabli* Radoszkowski (*Chrysis*)\* 469  
*taborskyi* Balthasar (*Chrysis*)\* 469  
*taczanowskii* Radoszkowski (*Chrysis*)\* 469  
*tadzhica* Semenov and Nikol'skaya (*Chrysis*)\* 469  
*taeniatus* Viereck (*Parnopes*) 585  
*Taeniochrysis* Haupt 480  
*taeniophrys* Förster (*Chrysis*) 422  
*tafnensis* Lucas (*Chrysis*)\* 469  
*taial* (Tsuneki) (*Trichrysis*) 572  
*taiborina* Mocsáry (*Chrysis*)\* 469  
*taino* Krombein (*Nesogyne*)\* 129  
*taiwana* Tsuneki (*Chrysis*)\* 470  
*taiwanense* Tsuneki (*Hedychrum*)\* 221  
*taiwanus* (Tsuneki) (*Holophris*)\* 225  
*takanoi* Tsuneki (*Chrysis*) 383  
*takasago* Tsuneki (*Chrysis*)\* 470  
*takasago* Tsuneki (*Hedychrum*)\* 221  
*takeuchii* Tsuneki (*Chrysis*)\* 470  
*talitha* Mocsáry (*Chrysis*)\* 470  
*tamara* Semenov (*Chrysis*)\* 470  
*tamerlana* Mocsáry (*Chrysis*)\* 470  
*tantilla* Linsenmaier (*Chrysis*)\* 470  
*tarnanii* (Semenov) (*Pseudomalus*)\* 269  
*tarsata* Dahlbom (*Chrysis*) 467  
*tarsata* (Tournier) (*Chrysidea*) 314  
*taschenbergi* (Mocsáry) (*Caenochrysis*)\* 305  
*tasmaniaca* Mocsáry (*Chrysis*)\* 470  
*tatiana* Semenov (*Chrysis*)\* 470  
*tatiana* (Semenov) (*Philoctetes*)\* 258  
*taurica* Mocsáry (*Chrysis*) 455  
*tauricus* (Semenov) (*Elampus*)\* 171  
*taurisiaca* (Linsenmaier) (*Spinolia*) 551  
*taurisiensis* Linsenmaier (*Chrysis*) 445  
*tayabicum* Cockerell (*Hedychridium*)\* 205  
*taygeta* Shuckard (*Chrysis*) 420  
*taylori* (Bodenstein) (*Pseudolopyga*)\* 262  
*tecta* Edney (*Chrysis*)\* 470  
*tedshensis* Linsenmaier (*Chrysis*)\* 470



- teillhardi* Buysson (*Chrysis*) 455  
*tekensis* Semenov (*Chrysis*)\* 470  
*telfordi* (Bohart and Campos) (*Philoctetes*)\* 258  
*tellinii* Buysson (*Chrysis*) 403  
*temperatum* Linsenmaier (*Hedychridium*) 194  
*temporalis* Buysson (*Chrysis*)\* 470  
*tenebrae* Kimsey (*Amisega*)\* 93  
*tenella* Mocsáry (*Chrysis*)\* 471  
*tenellula* (Semenov) (*Spintharina*)\* 558  
*tenera* Mocsáry (*Chrysis*) 474  
*tenerifense* Linsenmaier (*Hedychridium*)\* 206  
*tenerifensis* (Linsenmaier) (*Philoctetes*)\* 258  
*tensa* Bohart (*Chrysis*)\* 471  
*tentans* Edney (*Chrysis*) 403  
*tenuicornis* Semenov (*Chrysis*) 471  
*tenuicornis* Taylor (*Chrysis*)\* 471  
*tenuimediatus* (Linsenmaier) (*Primeuchroeus*)\* 543  
*tenuis* Bohart (*Chrysis*)\* 471  
*tenuispina* (Linsenmaier) (*Exochrysis*)\* 503  
*tenuitarsis* Linsenmaier (*Holopyga*)\* 236  
*Teratochrysis* Semenov 519  
*terminata* Dahlbom (*Chrysis*) 420  
*terpsichore* Balthasar (*Chrysis*) 459  
*tertrini* (Buysson) (*Pseudospinolia*)\* 548  
*tesserops* Bohart (*Chrysis*)\* 471  
*tessmanni* Bischoff (*Hedychrum*)\* 221  
*testaceicornis* (Buysson) (*Pseudomalus*)\* 269  
*testaceum* Linsenmaier (*Hedychrum*)\* 221  
*Tetrachridium* Zimmermann 181  
*Tetrachrysis* Lichtenstein 315  
*tetradontophora* (Bischoff) (*Chrysis*) 404  
*tetragona* Mocsáry (*Chrysis*)\* 471  
*tetraspina* Riek (*Exova*)\* 111  
*teutoniaca* (Linsenmaier) (*Ipsiura*)\* 511  
*texana* Gribodo (*Chrysis*) 422  
*thaiensis* Tsuneki (*Cleptes*)\* 64  
*thailandina* Tsuneki (*Chrysis*) 466  
*thakur* Mocsáry (*Chrysis*)\* 471  
*thalassina* Gmelin (*Chrysis*) 477  
*thalhammeri* Mocsáry (*Chrysis*) 405  
*thalia* Nurse (*Chrysis*)\* 471  
*therates* Mocsáry (*Chrysis*) 438  
*theresiae* (Buysson) (*Spinolia*)\* 552  
*theresiae* Mocsáry (*Hedychrum*)\* 221  
*thoracica* Buysson (*Chrysis*) 460  
*thoracius* Laporte (*Cleptes*) 62  
*thorpi* Bohart (*Primeuchroeus*)\* 543  
*thuringiaca* (Schmiedeknecht) (*Pseudospinolia*) 548  
*thysana* Bohart (*Ceratochrysis*)\* 310  
*tianshanica* Semenov (*Chrysis*)\* 471  
*tiberiadis* Buysson (*Philoctetes*)\* 258  
*tibetana* Mocsáry (*Chrysis*)\* 471  
*tibiarum* Zimmermann (*Chrysis*)\* 471  
*timidum* Dahlbom (*Hedychrum*)\* 221  
*timidus* (Nurse) (*Holophris*)\* 226  
*tingitana* Bischoff (*Chrysis*)\* 471  
*tisiphone* Edney (*Chrysis*)\* 472  
*togoana* (Bischoff) (*Chrysis*) 478  
*togoensis* (Bischoff) (*Chrysis*) 435  
*tolteca* (Mocsáry) (*Exochrysis*)\* 503  
*tonkinensis* (Mocsáry) (*Trichrysis*) 574  
*toralis* Kimsey (*Argochrysis*)\* 292  
*torosa* Mocsáry (*Holopyga*) 233  
*torrida* Krombein (*Baeosega*)\* 100  
*torrida* (Mocsáry) (*Brugmoia*)\* 297  
*tota* (Aaron) (*Chrysura*)\* 497  
*tourmieri* Dalla Torre (*Elampus*)\* 171  
*townesi* Kimsey (*Cleptes*)\* 64  
*townesorum* Bohart (*Praestochrysis*)\* 535  
*townsendi* (Ashmead) (*Amisega*)\* 93  
*trachypleura* Bohart (*Ceratochrysis*)\* 310  
*tragica* Semenov (*Chrysis*)\* 472  
*transcaspica* Mocsáry (*Chrysis*) 407  
*transmutata* (Mocsáry) (*Trichrysis*) 574  
*transoxiana* Semenov (*Chrysis*) 441  
*transstriata* Linsenmaier (*Neochrysis*) 517  
*transvaalensis* Mocsáry (*Chrysis*) 404  
*transversa* (Dahlbom) (*Pseudospinolia*)\* 548  
*trapezicolle* Semenov (*Hedychrum*) 213  
*trapeziphora* Linsenmaier (*Holopyga*)\* 236  
*trautmanni* Brauns (*Allocoelia*)\* 276  
*trautmanni* (Brauns) (*Chrysis*)\* 472  
*trautmanni* Brauns (*Odontochrydium*) 519  
*triacantha* (Mocsáry) (*Trichrysis*)\* 573  
*triangulata* Mocsáry (*Chrysis*) 425  
*triangulifer* (Abeille) (*Pseudomalus*)\* 269  
*triangulifera* (Mocsáry) (*Caenochrysis*)\* 305  
*Trichrysis* Lichtenstein\* 283, 568  
*tricolor* Lucas (*Chrysis*) 461  
*tricoloricornis* (Linsenmaier) (*Pseudospinolia*)\* 548  
*tridens* (Lepeletier) (*Caenochrysis*)\* 305  
*tridentata* (Dahlbom) (*Caenochrysis*) 305  
*trigona* (Mocsáry) (*Trichrysis*)\* 574  
*trilobatus* (Bohart and Campos) (*Pseudomalus*)\* 269  
*trimaculata* (Förster) (*Chrysura*)\* 497  
*trinidadiensis* (Linsenmaier) (*Caenochrysis*)\* 305  
*tripartita* Aaron (*Chrysis*)\* 472  
*trisinuata* Mocsáry (*Chrysis*)\* 472  
*tristricula* Linsenmaier (*Chrysis*) 468  
*tristis* Tsuneki (*Elampus*) 167  
*trochilus* (Buysson) (*Argochrysis*)\* 292  
*tropica* (Mocsáry) (*Praestochrysis*)\* 535  
*tropicalis* Bohart (*Ipsiura*)\* 511  
*trossulus* (Semenov) (*Hedychridium*)\* 206  
*truculentus* (Buysson) (*Primeuchroeus*)\* 544  
*truncata* (Guérin) (*Caenochrysis*) 305  
*truncatella* (Dahlbom) (*Caenochrysis*) 303  
*truncatus* (Dahlbom) (*Philoctetes*)\* 258  
*tschadensis* Linsenmaier (*Chrysis*)\* 472  
*tsingiz* (Semenov) (*Pseudomalus*)\* 270  
*tsingtauensis* (Bischoff) (*Chrysis*)\* 472  
*tsunekii* Linsenmaier (*Chrysis*) 206  
*tsunekii* Linsenmaier (*Hedychridium*)\* 463  
*tuberella* Bohart (*Ceratochrysis*) 309  
*tularensis* Bohart (*Chrysis*)\* 472  
*tumens* Buysson (*Chrysis*)\* 472  
*tumida* (Mocsáry) (*Pseudospinolia*)\* 548  
*tunisiense* Linsenmaier (*Hedychridium*) 204



- tunisiana* Linsenmaier (*Chrysis*)\* 472
- turanicum* Semenov (*Hedychridium*)\* 206
- turanum* (Semenov) (*Hedychridium*) 203
- turca* Linsenmaier (*Holopyga*) 231
- turceyana* (Linsenmaier) (*Brugmoia*) 296
- turceyana* Linsenmaier (*Chrysis*)\* 472
- turceyanus* Linsenmaier (*Cleptes*)\* 64
- turceyense* Linsenmaier (*Hedychridium*) 197
- turcica* (Buysson) (*Chrysis*) 448
- turcica* (Mocsáry) (*Chrysura*) 489
- turcmenicus* (Linsenmaier) (*Elampus*)\* 171
- turcmenus* (Semenov) (*Philoctetes*) 255
- turcomana* Semenov (*Chrysis*)\* 473
- turkestanica* Semenov (*Chrysis*) 381
- turkestanica* Mocsáry (*Holopyga*) 229
- turkestanicus* (Mocsáry) (*Pseudomalus*)\* 270
- turkestanicus* Semenov (*Parnopes*) 586
- turmalina* (Linsenmaier) (*Caenochrysis*) 304
- turneri* Krombein (*Reidia*)\* 134
- turneri* Edney (*Chrysis*) 473
- turneri* (Mocsáry) (*Primeuchroeus*) 544
- turneriella* Bohart (*Chrysis*)\* 473
- tyispanicum* (Trautmann) (*Chrysis*) 455
- tyro* (Trautmann) (*Hedychridium*)\* 206
- tyxis* Kimsey (*Neochrysis*)\* 516
- ugandae* Bohart (*Chrysis*)\* 473
- ugandana* Mocsáry (*Chrysis*)\* 473
- ujkelyiana* Mocsáry (*Holopyga*)\* 236
- ukereuensis* Mocsáry (*Chrysis*) 383
- ulconota* (Linsenmaier) (*Ipsiura*)\* 511
- uljanini* Radoszkowski (*Chrysis*)\* 473
- ultimum* Edney (*Hedychridium*)\* 206
- ultramonticola* Linsenmaier (*Chrysis*) 477
- umbra* (Semenov and Nickol'skaya) (*Chrysura*)\* 497
- umesaoui* Tsuneki (*Holopyga*) 229
- uncifera* Abeille (*Chrysis*) 399
- uncinatum* Edney (*Hedychridium*)\* 206
- undata* Dahlbom (*Chrysis*)\* 473
- undulata* Radoszkowski (*Chrysis*) 461
- undulella* Mocsáry (*Chrysis*)\* 473
- unica* Radoszkowski (*Chrysis*) 465
- unicolor* Balthasar (*Hedychrum*)\* 221
- unicolor* (Brullé) (*Caenochrysis*) 301
- unicolor* (Dahlbom) (*Spinolia*)\* 552
- unicolor* Gribodo (*Parnopes*)\* 596
- unicolor* (Lucas) (*Chrysura*) 490
- unicolor* (Trautmann) (*Elampus*) 170
- unicolor* (Trautmann) (*Pseudomalus*) 266
- unidens* (Mocsáry) (*Primeuchroeus*)\* 544
- unifasciata* Hoffmann (*Chrysis*) 467
- uniformis* (Dahlbom) (*Pseudospinolia*)\* 548
- uniformis* Linsenmaier (*Hedychridium*) 193
- uniformis* Trautmann (*Hedychrum*) 219
- uniformis* (Trautmann) (*Omalus*) 247
- unita* (Mocsáry) (*Argochrysis*)\* 292
- unitasculpta* Semenov (*Holopyga*)\* 236
- uqua* Bohart (*Primeuchroeus*)\* 544
- urakensis* Linsenmaier (*Chrysis*)\* 473
- urana* Nurse (*Chrysis*)\* 473
- urfana* (Linsenmaier) (*Chrysura*)\* 497
- urfanum* Linsenmaier (*Hedychridium*)\* 206
- uruguayensis* Kimsey (*Pleurochrysis*)\* 528
- ussuriensis* (Semenov) (*Elampus*)\* 171
- uvarovi* Semenov (*Chrysis*) 425
- uvarovi* (Semenov) (*Elampus*) 171
- uvarovi* Semenov (*Hedychridium*)\* 206
- vachali* Buysson (*Chrysis*)\* 473
- vachali* Mercet (*Hedychridium*)\* 206
- vafra* Mocsáry (*Chrysis*) 469
- vagabunda* Bohart (*Chrysis*)\* 474
- vagabunda* Kimsey (*Duckeia*)\* 108
- vagans* Radoszkowski (*Spintharina*)\* 558
- vabli* Dahlbom (*Chrysis*)\* 474
- valenciana* Hoffmann (*Chrysis*) 458
- valerii* Semenov (*Chrysis*)\* 474
- valesiana* Frey-Gessner (*Chrysis*)\* 474
- valesianum* Linsenmaier (*Hedychridium*) 205
- valesiense* Linsenmaier (*Hedychridium*)\* 206
- valida* Mocsáry (*Chrysis*)\* 474
- valkeilai* Linsenmaier (*Chrysis*)\* 474
- vanlithi* Linsenmaier (*Chrysis*) 458
- vansonii* (Brauns) (*Chrysis*)\* 474
- vareana* Linsenmaier (*Chrysis*) 390
- vareillei* (Buysson) (*Cephaloparnops*)\* 578
- varia* Mocsáry (*Chrysis*)\* 474
- varia* Schenck (*Holopyga*) 228
- varia* Zimngiebl (*Holopyga*) 229
- variana* Buysson (*Chrysis*)\* 474
- variatus* (Aaron) (*Philoctetes*)\* 258
- varicolor* Smith (*Chrysis*)\* 474
- varicornis* (Radoszkowski) (*Chrysura*) 496
- varicornis* (Spinola) (*Chrysura*)\* 497
- varidens* Abeille (*Chrysis*)\* 474
- variegata* Curtis (*Chrysis*) 389
- variegata* Olivier (*Chrysis*)\* 475
- variegatus* (Tsuneki) (*Philoctetes*) 255
- varicornis* (Mocsáry) (*Chrysura*) 497
- variipes* Mocsáry (*Chrysis*)\* 475
- variolum* Costa (*Stilbum*) 567
- variolum* Perez (*Holopyga*)\* 236
- vaulogeri* Buysson (*Chrysis*)\* 475
- venablei* Krombein (*Perissosaga*)\* 132
- venezuelana* Bohart (*Ipsiura*)\* 511
- venezuelana* Mocsáry (*Chrysis*) 455
- venezuelensis* (Linsenmaier) (*Pleurochrysis*)\* 528
- ventralis* (Say) (*Holopyga*)\* 236
- ventura* Kimsey (*Minymischa*)\* 241
- venusta* Cresson (*Chrysis*)\* 475
- venusta* (Mocsáry) (*Chrysura*) 490
- venustella* Bohart (*Chrysis*)\* 475
- venustus* Tsuneki (*Cleptes*)\* 64
- ver* Semenov (*Chrysis*)\* 475
- verae* Semenov (*Chrysis*)\* 476
- vergiana* Semenov (*Chrysis*)\* 476
- verhoeffi* Linsenmaier (*Chrysis*)\* 476
- verhoeffi* Linsenmaier (*Hedychridium*)\* 206
- veridans* (Harris) (*Trichrysis*) 571
- verna* Dahlbom (*Chrysis*)\* 476
- vernale* Cresson (*Hedychrum*)\* 221
- verreauxi* Buysson (*Chrysis*) 422
- versicolor* Lucas (*Chrysis*) 465
- versicolor* Norton (*Elampus*) 171
- versicolor* (Spinola) (*Spintharina*)\* 558
- versuta* Mocsáry (*Chrysis*) 412

- verticalis* (Patton) (*Caenochrysis*) 302  
*verudens* Mocsáry (*Chrysis*)\* 476  
*vesper* Semenov (*Chrysis*)\* 476  
*vespera* (Semenov) (*Brugmoia*)\* 297  
*vespera* Semenov (*Holopyga*)\* 236  
*vestalis* (Mocsáry) (*Spintbarina*) 557  
*vestigator* (Smith) (*Trichrysis*)\* 574  
*vestita* Buysson (*Chrysis*) 419  
*veterinum* Mocsáry (*Hedychrum*) 219  
*vibex* Bohart (*Chrysis*)\* 476  
*vicaria* Mocsáry (*Chrysis*)\* 476  
*vicina* (Linsenmaier) (*Caenochrysis*)\* 305  
*victorianus* (Linsenmaier) (*Primeuchroeus*) 542  
*victrix* Edney (*Chrysis*)\* 476  
*viennensis* Linsenmaier (*Chrysis*) 397  
*vigora* Linsenmaier (*Holopyga*)\* 236  
*villosula* Bohart (*Chrysis*)\* 476  
*vinaria* Linsenmaier (*Chrysis*) 407  
*violacea* (Bischoff) (*Chrysis*) 438  
*violacea* Bischoff (*Trichrysis*) 573  
*violacea* Hoffmann (*Holopyga*) 231  
*violacea* Panzer (*Chrysis*) 410  
*violacea* Schrank (*Chrysis*) 453  
*violacea* (Smith) (*Chrysis*) 433  
*violacea* Uchida (*Chrysis*) 420  
*violaceiventris* Mocsáry (*Chrysis*)\* 476  
*violaceum* Brullé (*Hedychrum*)\* 221  
*violacea* (Scopoli) (*Pseudomalus*)\* 270  
*violacuna* Bohart (*Chrysis*)\* 476  
*violascens* Mocsáry (*Chrysis*) 447  
*violascens* (Mocsáry) (*Elampus*) 172  
*violenta* Linsenmaier (*Chrysis*)\* 476  
*virens* Dahlbom (*Hedychrum*)\* 221  
*virens* Christ (*Chrysis*)\* 477  
*virens* (Cresson) (*Caenochrysis*) 305  
*virens* (Mocsáry) (*Pseudomalus*)\* 270  
*virescens* Brullé (*Chrysis*) 437  
*virescens* Buysson (*Hedychridium*) 186  
*virescens* Mocsáry (*Holopyga*)\* 236  
*virescens* (Mocsáry) (*Pseudomalus*) 266  
*virgiliana* Semenov (*Chrysis*)\* 477  
*virgo* (Abeille) (*Chrysidea*) 314  
*virgo* (Semenov) (*Brugmoia*) 296  
*viridana* (Dahlbom) (*Chrysura*)\* 498  
*viridans* Radoszkowski (*Chrysis*) 396  
*viridauratus* (Tsuneki) (*Pseudomalus*) 269  
*viride* (Cresson) (*Hedychridium*) 194  
*viride* Guérin (*Stilbum*)\* 568  
*virideaurata* Linsenmaier (*Holopyga*) 229  
*viridefasciata* Hoffmann (*Chrysis*) 421  
*virideocincta* Hellen (*Chrysis*) 468  
*virididauratum* Mocsáry (*Hedychrum*) 219  
*viridiaureum* Tournier (*Hedychrum*) 219  
*viridiceps* (Kieffer) (*Cleptidea*)\* 70  
*viridicyanea* Giebel (*Chrysis*)\* 477  
*viridicyanea* Linsenmaier (*Chrysis*)\* 477  
*viridicyaneus* Norton (*Elampus*)\* 172  
*viridifrons* (Smith) (*Primeuchroeus*)\* 544  
*viridifulgens* Muller (*Parnopes*) 586  
*viridimaculata* (Bischoff) (*Chrysis*)\* 477  
*viridimarginale* Buysson (*Hedychridium*) 187  
*viridimargo* Buysson (*Chrysis*) 469  
*viridior* (Edney) (*Spintbarina*) 557  
*viridirosea* Linsenmaier (*Chrysis*)\* 477  
*viridis* Brullé (*Chrysis*) 462  
*viridis* Brullé (*Parnopes*)\* 587  
*viridis* Cresson (*Elampus*)\* 172  
*viridis* Edney (*Hedychridium*) 190  
*viridis* (Geoffroy) (*Hedychrum*) 217  
*viridis* Gravenhorst (*Cleptes*)\* 64  
*viridis* (Guérin) (*Holopyga*)\* 236  
*viridis* (Guérin) (*Pleurochrysis*) 525  
*viridis* Olivier (*Chrysis*)\* 477  
*viridis* (Tournier) (*Elampus*) 171  
*viridis* (Trautmann) (*Chrysis*) 478  
*viridis* Trautmann (*Hedychridium*) 188  
*viridis* (Trautmann) (*Pseudomalus*) 270  
*viridis* (Trautmann) (*Pseudospinolia*) 547  
*viridissima* Klug (*Chrysis*)\* 477  
*viridisulcatum* Linsenmaier (*Hedychridium*)\* 206  
*viridiventris* (Abeille) (*Elampus*) 167  
*viridiventris* (Mocsáry) (*Pseudomalus*) 266  
*viridiviolacea* Linsenmaier (*Chrysis*) 414  
*viridimaculatus* (Tsuneki) (*Philoctetes*) 255  
*viridula* Linnaeus (*Chrysis*)\* 477  
*viroris* Bohart (*Chrysis*)\* 478  
*viroris* Kimsey (*Argochrysis*)\* 292  
*vishnu* Mocsáry (*Chrysis*)\* 478  
*vitripennis* Schenck (*Chrysis*) 420  
*vogti* (Trautmann) (*Chrysis*) 407  
*vogti* (Trautmann) (*Spinolia*) 551  
*voienis* Buysson (*Chrysis*)\* 478  
*volatilis* Smith (*Chrysis*)\* 478  
*volutans* Edney (*Chrysis*) 462  
*vomerina* Costa (*Chrysis*) 433  
*vulgare* Edney (*Hedychridium*)\* 207  
*vulgata* (Buysson) (*Elampus*) 171  
*vumba* Edney (*Chrysis*) 418  
*w-carinata* Linsenmaier (*Chrysis*) 422  
*wagneriella* Buysson (*Holopyga*)\* 236  
*wahlbergi* Dahlbom (*Chrysis*)\* 478  
*wahrmani* Linsenmaier (*Chrysis*) 409  
*waltlii* Norton (*Hedychrum*) 221  
*wasbaueri* Bohart (*Chrysis*)\* 478  
*wesmaeli* Chevrier (*Omalus*) 246  
*wesmaeli* Dahlbom (*Stilbum*) 567  
*wesmaeli* (Mocsáry) (*Philoctetes*) 256  
*westcottii* Melander and Brues (*Parnopes*) 585  
*westerlundi* Hellen (*Chrysis*) 478  
*westerlundi* Linsenmaier (*Chrysis*)\* 478  
*westermanni* Dahlbom (*Chrysis*)\* 478  
*westermanni* Dahlbom (*Stilbum*) 567  
*westwoodi* Mocsáry (*Chrysis*) 409  
*whiteana* (Cameron) (*Chrysis*) 427  
*whiteheadi* Bohart (*Chrysis*)\* 479  
*wijesinbei* Krombein (*Indotbrix*)\* 115  
*wiltii* Cresson (*Hedychrum*)\* 221  
*windhoeckensis* (Bischoff) (*Chrysis*) 431  
*wolffi* Linsenmaier (*Hedychridium*)\* 207  
*wollmanni* Mocsáry (*Chrysis*)\* 479  
*Wollmanni* Mocsáry 207  
*wroughtoni* Buysson (*Chrysis*)\* 479  
*wroughtoni* Buysson (*Hedychridium*)\* 207  
*wuestnei* Mocsáry (*Chrysis*) 467  
*xantha* Kimsey (*Cleptidea*)\* 70  
*xanthocera* Klug (*Chrysis*)\* 479  
*xanthomelas* (Mocsáry) (*Cleptidea*)\* 70

- xanthum* (Semenov) (*Hedychridium*)\* 207
- Xerochrum* Bohart\* 159, 270
- xerophila* Bohart (*Chrysis*)\* 479
- xysa* Bohart (*Chrysis*)\* 479
- yallingupia* (Linsenmaier) (*Chrysis*)\* 479
- yanchepius* (Linsenmaier) (*Primeuchroeus*) 542
- yasumatsui* (Tsuneki) (*Elampus*)\* 173
- yermasoyiense* Linsenmaier (*Hedychridium*) 206
- yezoana* Uchida (*Chrysis*) 421
- yoshikawai* Tsuneki (*Chrysis*)\* 479
- ypirangensis* (Buysson) (*Pleurochrysis*)\* 528
- yuccatana* Linsenmaier (*Neochrysis*)\* 517
- yuccatanensis* (Linsenmaier) (*Caenochrysis*) 302
- zaitzevi* Semenov (*Chrysis*)\* 479
- zanderi* (Trautmann) (*Chrysis*)\* 479
- zanoni* Invrea (*Chrysis*) 416
- zanzibarica* Mocsáry (*Chrysis*)\* 479
- zarudniana* (Semenov) (*Brugmoia*)\* 297
- zarudniana* Semenov (*Holopyga*)\* 236
- Zarudnidium* Semenov 181
- zarudniella* Semenov (*Chrysis*)\* 480
- zarudniellus* (Semenov) (*Philoctetes*)\* 258
- zarudnii* Semenov (*Isadelphia*) 580
- Zarudnium* Semenov 181
- zarudnyi* Semenov (*Hedychrum*) 213
- zarudnyi* (Semenov) (*Omalus*)\* 249
- zavattari* (Zimmermann) (*Hedychridium*)\* 207
- zelleri* (Dahlbom) (*Hedychridium*)\* 207
- zetterstedti* Dahlbom (*Chrysis*) 410
- zharptitza* Semenov (*Pentachrysis*)\* 522
- zimmermanni* Balthasar (*Chrysis*) 429
- zimmermanni* Balthasar (*Hedychridium*)\* 207
- zimmermanni* Bohart (*Chrysidea*)\* 314
- zimmermanni* (Dahlbom) (*Muesebeckidium*) 243
- zimmermanni* Linsenmaier (*Stilbum*) 568
- Zimmermannia* Móczár 53
- znoikoi* Semenov (*Chrysis*) 469
- znoikoi* (Semenov) (*Hedychridium*)\* 207
- zobeida* Buysson (*Chrysis*)\* 480
- zonata* Dahlbom (*Chrysis*)\* 480
- zuleica* (Buysson) (*Chrysura*)\* 498
- zuluana* Mocsáry (*Chrysis*)\* 480
- zylla* Bohart (*Chrysis*)\* 480





# Index of Chrysidid Hosts

- Acrophylla* sp. 145  
*Ammophila aberti* Haldeman 307  
*Ammophila breviceps* F. Smith 289  
*Ammophila californica* Menke 289  
*Ammophila dysmica* Menke 14  
*Ammophila femurrubra* W. Fox 289  
*Ammophila marshi* Menke 289  
*Ammophila pruinosa* Cresson 289  
*Ammoplanellus* sp. 237  
*Ancistrocerus* sp. 349, 367, 372, 376, 377, 568  
*Anisomorpha ferruginea* (Beauv.) 12, 83  
*Anthidium banningense* Cockerell 343  
*Anthidium collectum* Huard 342, 343  
*Anthidium lituratum* Panzer 333  
*Anthidium manicatum* Linnaeus 342  
*Anthidium* sp. 340  
*Anthocopa* sp. 481  
Anthophoridae 11, 259  
*Ashmeadiella* sp. 481  
*Astata boops* Sch. 182  
*Astata pinguis* Dahlbom 227
- Bembecinus tridens* (Fabricius) 182  
*Bembicini* 11  
*Bembix* sp. 582  
*Bicyrtes fodiens* (Handlirsch) 227  
*Bicyrtes quadrifasciata* (Say) 227
- Caupolicana* sp. 374  
*Celonites* sp. 555  
*Cemonus grinnelli* (Rohwer) 246, 253, 265  
*Cemonus littoralis* Wagn. 265  
*Cemonus rugifer* Dahlbom 246, 265  
*Cemonus unicolor* (Panzer) 265  
*Cemonus* sp. 568  
*Ceramius capicola* Brauns 274  
*Ceramius lichtensteini* (Klug) 274  
*Cerceris arenaria* Linnaeus 209  
*Cerceris halone* Banks 209  
*Cerceris quadrifasciata* Panzer 228  
*Cerceris rubida* Jurine 367
- Cerceris sabulosa* Panzer 208  
*Cerceris* sp. 349  
*Chalicodoma muraria* Fabricius 227  
*Chalicodoma* sp. 13, 227, 565  
*Chelostoma* sp. 481, 568  
*Coenobasis* sp. 529  
Colletidae 374  
*Contbeyla* sp. 529  
*Ctenomorpha* sp. 125
- Darna* sp. 529  
*Delta* sp. 349, 565  
*Didymuria* sp. 125  
*Diodontus occidentalis* W. Fox 253  
*Diodontus virginianus* (Rohwer) 253  
Diprionidae 11, 12  
*Erythraspides interstitialis* (Cameron) 66  
*Eumenes fraternus* Say 374  
*Eumenes* sp. 13, 337, 349, 362, 507
- Eumenidae 11, 360, 529  
*Euodynerus* sp. 376
- Gymnomerus* sp. 349
- Halictidae 11  
*Halictus* sp. 209  
*Hemipterochilus bembeciformis* (Morawitz) 550  
*Heriades* sp. 568  
*Hoplisodes costalis* (Cresson) 164  
*Hoplitis* sp. 481
- Isodontia* sp. 368
- Jugurtia confusa* Richards 274, 555
- Leptochilus electus* (Cresson) 375
- Leptochilus periallis* Parker 307  
*Leptochilus republicanus* (Dalla Torre) 307  
*Leptochilus rufinodus* (Cresson) 307  
*Leptochilus tosquineti* (Cameron) 375  
*Leptochilus tricolor* (Provancher) 307  
*Leptochilus* sp. 376, 377  
Limacodidae 11, 528
- Masaridae 11, 345, 499, 555  
*Megachile* sp. 13  
Megachilidae 11, 359, 481  
*Microbembex* sp. 10, 582  
*Microdynerus* sp. 372, 376  
*Mimesa* sp. 164  
*Mimumesa mixta* (W. Fox) 165  
*Mimumesa* sp. 228  
*Miscophini* 364  
*Miscophus* sp. 182, 364  
*Monema flavescens* Walker 13  
*Monema* sp. 529  
*Nematus hispidus* Smith 55
- Nematus ribesii* Scopoli 55  
*Nematus* sp. 55  
*Neodiprion* sp. 55  
*Nitela* sp. 568
- Odynerus alpinus* Schulthess 367  
*Odynerus reniformis* (Gmelin) 347, 544  
*Odynerus* sp. 367, 372  
*Odynerus spinipes* (Linnaeus) 544  
*Odynerus spiricornis* (Spinola) 347  
*Osmia bidentata* Morawitz 354  
*Osmia cristata* Fonsc. 345  
*Osmia metallica* Lucas 342  
*Osmia* sp. 367, 481, 568  
*Oxybelus* sp. 182
- Pachodynerus gayi* (Spinola) 523  
*Pachodynerus* sp. 507

- Parancistrocerus* sp. 372, 376  
*Pararhophites quadratae* Friese 259  
*Parasa* sp. 529  
*Paravespa grandis* (Morawitz) 544  
*Passaloecus chevieri* Tournier 246  
*Passaloecus cuspidatus* F. Smith 246, 253, 265  
*Passaloecus eremita* Kohl 246  
*Passaloecus lethifer* Shuckard 265  
*Passaloecus singularis* Dahlbom 265  
*Passaloecus tenuis* A. Mor. 246  
*Passaloecus* sp. 246  
*Pemphredon concolor* Say 265  
*Pemphredon confertim* W. Fox 265  
*Pemphredon flavistigma* Thom. 265  
*Pemphredon lethifer* (Shuckard) 265  
*Pemphredon lugubris* (Fabricius) 265  
*Pemphredon* sp. 246, 265  
*Pemphredoninae* 243, 253  
Phasmatidae 11, 12  
*Philanthus* sp. 348  
*Pison* sp. 311, 529, 536  
*Pisonopsis birkmanni* Rohwer 307  
*Podacanthus* sp. 125  
*Podium luctuosum* F. Smith 502  
*Podium rufipes* (Fabricius) 502  
*Prisopus obrtmani* (Lichtenstein) 107  
*Pristophora* sp. 55  
*Proteriades* sp. 481  
*Psen caliginosus* Westwood 246  
*Psenuus atratus* Fabricius 246  
*Psenuus trisculus* (W. Fox) 246  
*Pseudomasaris edwardsii* (Cresson) 499  
*Pseudomasaris occidentalis* (Cresson) 499  
*Pseudomasaris vespoides* (Cresson) 499  
*Pseudomasaris zonalis* (Cresson) 499  
*Rhodanthidium caturigense* (Giraud) 345  
*Rhodanthidium* sp. 340  
*Sceliphron destillatorium* (Illiger) 13  
*Sceliphron hemipterum* Fabricius 311  
*Sceliphron madecassum* Gribodo 311  
*Sceliphron madraspatanum* (F.) 228  
*Sceliphron* sp. 13, 14, 337, 352, 507, 523, 565  
*Solierella blaisdelli* (Bridwell) 182, 261  
*Solierella compedita* Picc. 182  
*Solierella peckhami* (Ashmead) 12, 182, 261  
*Solierella pisonoides* (Saunders) 246  
*Solierella plenoculoides* W. Fox 12  
*Solierella* sp. 13  
Sphecidae 11  
*Stenancistrocerus atropos* (Lepeletier) 354  
*Steniolia* sp. 582  
*Stenodynerus* sp. 372  
*Stigmus americanus* Packard 246, 265  
*Stigmus inordinatus* W. Fox 246, 253  
*Stigmus rumipambensis* Benoist 246  
*Symmorphus* sp. 349, 376  
*Tachyspbex nitidus* Spinola 182  
*Tachyspbex panzeri* Lind. 182  
*Tachyspbex pompiliformis* (Panzer) 182  
Tenthredinidae 11, 12  
*Thosea* sp. 529  
*Trypargilum clavatum* (Say) 300  
*Trypargilum collinum* (F. Smith) 300, 376  
*Trypargilum politum* (Say) 300  
*Trypargilum striatum* (Provancher) 300  
*Trypargilum tridentatum* (Packard) 300, 307, 376  
*Trypargilum* sp. 300, 513  
*Trypoxylon bidentatum* W. Fox 300  
*Trypoxylon frigidum* F. Smith 300  
*Trypoxylon* sp. 311, 507, 568  
*Trypoxylonini* 298









ISBN 0-19-854010-8



9 780198 540106